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REPORT

OF

THE PROVOST

OF THE

UNIVERSITY OF PENNSYLVANIA

For the two Years ending October 1, 1889

WITH ABSTRACTS FROM THE TREASURER'S
ANNUAL REPORTS



PRINTED FOR THE UNIVERSITY

1890



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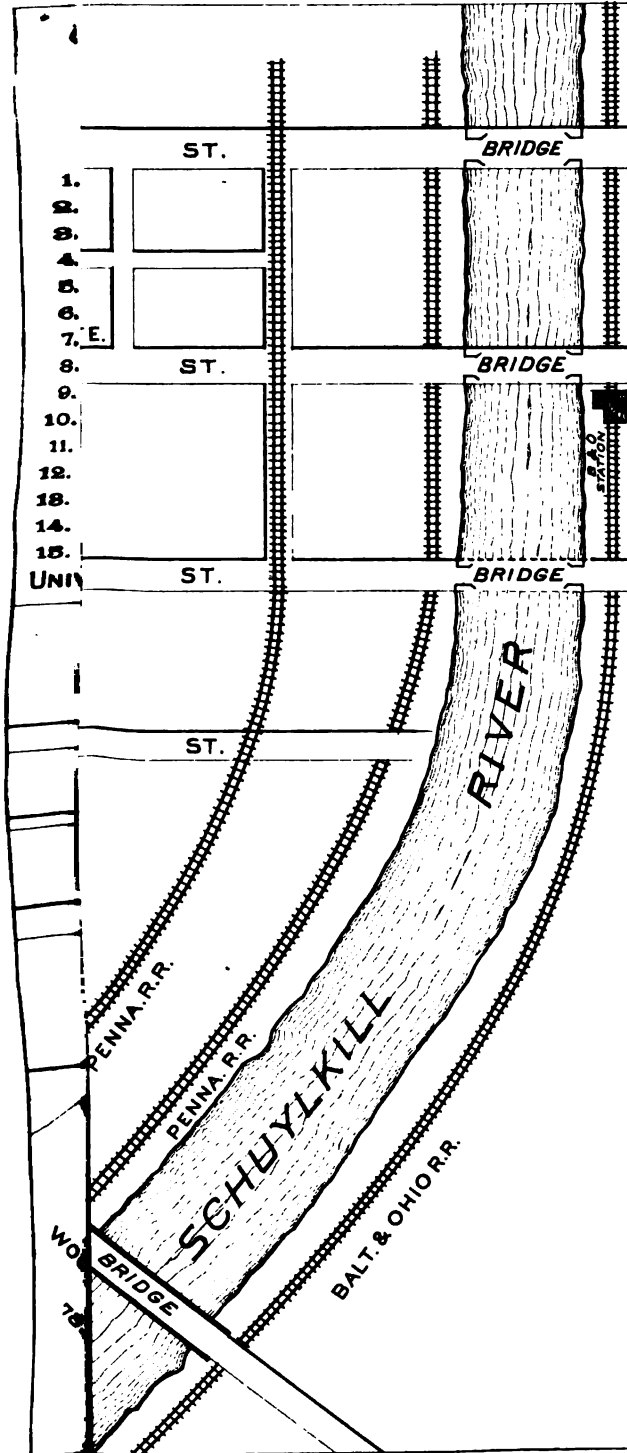
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LL.D., resigned the chair of Greek, which he had held for twelve years. Professor Muhlenberg's career in the University was one which uniformly secured the affectionate esteem of colleagues and students, and his retirement from the chair which he had so long occupied called forth many expressions of the regard inspired by his scholarly and gentle character.

In May of the same year Dr. RICHARD A. F. PENROSE, M.D., LL.D., resigned the chair of Obstetrics and of the Diseases of Women and Children, which he so ably filled since 1863. In recognition of his long and valuable services he was made Emeritus Professor, and received from the Trustees an assurance of the high appreciation in which those services were held.

In August, 1888, Professor F. A. GENTH retired from the chair of Chemistry and Mineralogy which he had held for sixteen years. During this time the contributions to chemical and mineralogical science made by this eminent chemist have been numerous and important, and have reflected great credit upon the institution from which they emanated. The retirement of so distinguished an investigator and observer calls attention forcibly to the pressing need in all our colleges of special endowments for professorships and laboratories, the occupants of which should be expected to take but little direct part in teaching, while the results of their labors and the stimulus of their presence would have a powerful and direct effect upon the didactic work.

In the resignation of Professor D. HAYES AGNEW the University, and especially the Medical School, suffered a serious loss. Although in the fullest enjoyment of his remarkable power as a teacher, an author and a practitioner, he felt it judicious to withdraw on the score of advancing years. His connection with the University has been long and honorable, and no one has contributed more influentially than he to the maintenance of our Medical School in the foremost position. He received the degree of M.D. in 1838, was appointed Demonstrator of Anatomy in 1863, Professor of Clinical Surgery in 1870, and Professor of Surgery in 1871.

In recognition of his unusual services and reputation he was elected Emeritus Professor of Surgery, and at the same time

accepted the office of Honorary Professor of Clinical Surgery, which retains his connection with the University Hospital, and encourages the hope that from time to time he will deliver clinical lectures before the classes. At the time of this resignation there were many touching expressions of the singular affection and esteem entertained for him by the entire community, and especially, of course, by the medical profession and the graduates of the Medical School. He carries with him the warmest wishes of the Trustees and Faculties that he may be preserved in health and vigor for many years in the service of the profession of which he is so conspicuous an ornament.

In December, 1888, the Hon. J. I. CLARK HARE resigned the chair of the Institutes of Law, which he had occupied since 1868 with great advantage to the Law School and to the profession. He was elected Emeritus Professor, and his retirement, with the losses in the Faculty heretofore reported, made necessary the reconstruction of the Faculty, and a redistribution of the work of the several chairs, which is indicated in their present titles.

The only loss by death in the teaching staff was that of EDWARD TUNIS BRUEN, M.D., Assistant Professor of Physical Diagnosis, who died, after a brief illness, on March 31, 1889. Professor Bruen, while still a young man, had achieved for himself an enviable reputation as a practitioner and teacher, and his future seemed full of promise. His social and professional qualities were such as to endear him to a wide circle of friends, and in either sphere his early death is sincerely mourned.

Professor WILLIAM OSLER resigned the chair of Clinical Medicine at the close of the past session, having accepted a call to the important position of Physician-in-Chief to the Johns Hopkins Hospital, in Baltimore. He was elected in 1884, and during his connection with the University established for himself not only a brilliant reputation as a teacher and a practitioner, but a hold upon the affections of his colleagues and students which made his withdrawal a matter of deep regret. The reorganization made necessary by these removals are exhibited in the appendix before referred to, and of the advancements and additions then made it need

only be said that there is every reason to believe that the reputation of the University will be fully maintained by the carefully chosen and well-tried men to whom it has been entrusted.

The most important event affecting the general interest of the University has been the acquisition of ten acres of additional ground extending from the line of the University property on Thirty-fourth street south to the line of the Pennsylvania Railroad at South Street Station. The acquisition of this territory brings the holdings of the University in West Philadelphia up to $40\frac{4}{10}$ acres, as is shown by the accompanying map. This land is most advantageously distributed. It forms a continuous tract, protected to the southwest by Woodland avenue; thence it follows the line of Woodland avenue for 2,000 feet to Walnut and Thirty-fourth streets, and thence in a southeasterly direction it extends almost to the river, where it is protected by the lines of the Pennsylvania Railroad. This tract encircles a space of seventy-three acres, which has been preserved by the city to be improved for a Public Park. The amount of ground thus available for University buildings will probably suffice for many years to come; while the convenience of the position and the ample means of access from all directions leave nothing to desire. For the past fifteen years, since the transfer of the University to its present location, it has been a source of unceasing anxiety to secure sufficient ground for the future purposes and growth of the institution. The accomplishment of this will enable means and energy to be employed in other directions.

It is proper to call special attention to the approaching completion of the Library Building. Reference was made in several previous reports to the absolute necessity of such a building; the rapidly growing collections of books could not be displayed or consulted; the intellectual life and activity of the University were cramped in every direction owing to this want. As always happens, the clear statement and recognition of this need was followed by a determined effort to supply it. As the University had no free funds available for the purpose, a committee was organized and subscriptions amounting to \$220,000 have already been received, of which \$180,000 are for construction, and \$40,000 are specifically for additions

to the endowment funds. Great care was given to the preparation of the plans, and a course was pursued which, it is believed, has resulted in a structure remarkably well adapted to its purposes. Mr. Frank Furness, the well-known architect, was selected by the Board. He prepared a preliminary plan, and a conference of eminent librarians from various cities was held at the University. The plans were made the subject of minute and critical study. Many criticisms and suggestions were offered, the discussion was of marked interest and value, and as a result the plans were widely altered in many respects by Mr. Furness, whose revised plans were then sent to the expert consultants for final study. A few suggestions only were made, some of which were adopted and others rejected. As already stated, it is believed by competent authorities that the building thus planned will prove a singular success in library construction. The formal opening will take place early in the autumn. The storage capacity is for 350,000 volumes, but the book stack admits of indefinite extension. The remarkable rapidity of growth of the Library during the past few years indicates that such extensions will be needed within the present decade.

I desire to call attention emphatically to the point that this Library is to be maintained as a free public Library of reference, open to the entire community at all proper times. An application was made to City Councils for a piece of ground containing about three-quarters of an acre necessary to complete the University frontage on Woodland avenue, and in this petition a formal pledge was given that if the land were ceded to the University a fire-proof Library building would be constructed upon the University property, and would be maintained as a Free Public Library of reference. With wise liberality this petition was granted (see Ordinance, Appendix 2), and it is with satisfaction that we can point to the completed building, standing in the most accessible and convenient site. Although, however, there have been important additions to the Library endowment, the income available for conducting the Library on the basis proposed will be utterly inadequate. On the lowest estimate, an addition of \$100,000 to the present endowment, or subscriptions to the current expenses of the Library amount-

ing at least to \$5,000 per annum, must be secured without delay. As this is a matter which concerns intimately both the honor of the University and the interest of the entire community, it is proper that an earnest appeal should here be made in its behalf.

The Librarian's report (Appendix No. 3) gives a concise statement of the growth of the Library and the rapidly increasing use which is made of it even in its present cramped quarters. There have, moreover, been various gifts of the utmost importance which have not yet been placed upon the shelves, and to which it is not proper to allude at present. Especial mention must be made of the generous contribution of \$25,000 by Mr. Joseph Wharton for the endowment of the Library of the Wharton School of Finance and Economy. This wise and timely gift ensures the future prosperity of this branch of the University Library. It is earnestly hoped that other individuals will recognize the propriety of endowing in a similar manner special branches of the Library in which they are most interested. Nothing has been more encouraging than the voluntary exertions of various members of the Faculty by which collections of the highest importance have been secured. I would allude especially to the acquisition of the Pott Philological Library through the exertions of Professor McElroy, that of the Leutsch Library of Classics by Professor Jackson and that of the Arabic Collection by Professor Jastrow. In every such instance the direct appeal of a recognized authority in favor of securing a collection of unquestionable value and of immediate utility has been responded to promptly and liberally.

The thanks not only of their colleagues and of the students, but of the entire community are due to these and other gentlemen for the important acquisitions thus secured. They place the University Library in the very front rank in many directions, and it is to be hoped that similar determined efforts will be maintained until it is equally strong in all lines.

The system of organization by which the co-operation of various Boards composed only in part of the Trustees and members of Faculties is secured has been cautiously extended. The privilege of obtaining such co-operation is one of the great ad-

vantages attaching to the location of the University in a great city. Attention will be called elsewhere to the excellent results accomplished by the Board of Managers of the University Hospital, and by the Board of the Veterinary Hospital. The University Lecture Association has greatly extended its field of operations and with constantly increasing success. The courses of lectures which have been given under its auspices, and which are briefly stated in Appendix No. 4, have been attended by large and studious audiences, and have constituted a solid addition to the intellectual life of the community in each season. The increasing prosperity of the Association will render much more liberal arrangements possible, and it may be confidently expected that the scope and influence of this work will steadily enlarge.

The highly important subject of University extension, which has speedily attained such remarkable proportions in Great Britain, has naturally come up in connection with the work of the Lecture Association. It seems to be felt by all that the peculiar position of the University in Philadelphia enables it to initiate the work with singular advantages. The co-operation of many institutions will be sought, a special Association will be formed, and I venture to predict that my next report will contain a record of much vigorous and successful work in this new field.

The acquisition of more land enabled your Board to extend a long-contemplated offer to several institutions to acquire, in fee, adequate portions of this territory, and to move to the vicinity of the University in order to insure concentration and co-ordination of energy on the part of students, teachers and investigators in kindred branches. The only formal offer made was to the Academy of Natural Sciences, which body, after due deliberation, decided that such a change of location would not be conducive to its interests. The official correspondence will be found in Appendix 5. It is given here as an interesting feature in the experience of these institutions, whose relations must ever be in the future as in the past close and harmonious, in spite of the fact that actual approximation cannot now be secured. It is to be hoped that a continuance of this liberal and wise policy on the part of the University will make

it more and more clearly recognized as the intellectual centre of this great community, around which will naturally group themselves the various scientific and literary institutions, whose work is an essential part of a comprehensive university scheme.

The deep interest excited in the Babylonian explorations conducted by the University has led to the suggestion that a broader organization should be effected, so as to cover various fields of research now not represented in the University. The plan will be to form an Archæological Association, whose officers and council shall consist in part of members of your Board and in part of members of the Association, and to develop a great museum, embracing Palæontology, Ethnology and Archæology, which will be under a special Board of Managers.

In Appendix 6 there are given the plans of organization and the composition of the above Boards. The work entrusted to this Association is largely varied and most attractive. There is already evidence to show that the movement meets with widespread favor and support. Fortunately there is ample space in the new Library Building to accommodate large collections, and thus it may be several years before the necessity for a great museum building becomes urgent. This is highly desirable in order that time may be furnished for mature study of our exact needs in this direction.

In passing to the consideration of the reports of the several departments, I would first call attention to the highly important report of Dr. Jayne (Appendix 7), the Dean of the College Department. I will refrain from extended comment, as I trust this interesting paper will be read by all. It affords conclusive evidence as to the healthy state of the College. The number of students in attendance is increasing and the standard of scholarship is rising. Especial attention is invited to the judicious remarks on the Certificate privilege and upon the most urgent needs of this Department. The retirement of Vice-Provost Kendall from his duties as Dean, which occurred in January, 1889, was followed by the election to that office of Dr. Jayne, who had formerly been acting as Dean of the Biological School. It would be improper to pass over this change without a brief but earnest acknowledgment

of the rare value of the influence exerted by the Vice-Provost during his tenure of office as Dean of the College. It is not too much to say that his personal qualities and influence have created a standard of courteous action and of genial feeling amongst teachers and students which will last far beyond this generation.

The report of the Medical Department (see Appendix 8) presents gratifying evidence of increasing prosperity. One of the most important points noted in it refers to the serious damage to the Medical Hall by the fire of May 1, 1888. Although the results were far less serious than were feared, and although the condition and equipment are far better now than prior to the fire, the accident emphasizes in the strongest manner the importance of having every building in which valuable collections are to be stored of fire-proof construction.

The argument in favor of the addition of a fourth year to the Medical curriculum, as stated by Dr. Tyson, is simply unanswerable. This matter was urged strongly in my last report, and it should be kept before the notice of the medical profession and of the community until it becomes an accomplished fact. The loss incurred by the community in employing half educated and imperfectly qualified practitioners is too serious to contemplate with equanimity, although long usage has inured us to the faulty system on which nearly all American medical schools are conducted.

The influence of the successful establishment of a graded three-year course at Harvard and the University has been of incalculable value. The time has now come when the further and final step of establishing an obligatory fourth year must be undertaken. The calculation by Dr. Tyson of the endowment required to render this movement a permanent success agrees closely with the sum mentioned in the report upon this subject by Dr. Bowditch, the Dean of the Harvard Medical College.

It is with deep thankfulness I find myself able to record that the Trustees and the Medical Faculty, in accepting the generous offer of Mr. Henry C. Lea to erect a building for a complete School of Hygiene, deliberately assumed a binding condition that so soon as the stipulated endowment of \$200,000

for the Department of Hygiene shall be secured, a movement shall be started to raise a further sum of \$250,000 to enable an obligatory fourth year to be added to the Medical curriculum. The offer of Mr. Lea above mentioned, although affecting other departments of the University, will mark an epoch in the history of the Medical School. It may be predicted confidently that the conditions attached to his generous offer will all be complied with, and that the Department of Hygiene will be open for instruction at the beginning of the course 1891-2. It is to be hoped that the general recognition of the immense importance of the prolongation of the obligatory term of medical studies will make it easy to secure the sum stipulated for this purpose within a short period of time.

The period embraced in this report has witnessed notable changes to the Law Department, which are fully described in the report of the Dean, Professor Patterson. (Appendix 9.) The changes of the Faculty amount to a reorganization of that body, and have permitted a better distribution of subjects to be effected, as well as the introduction of several interesting topics which have hitherto been unavoidably neglected.

The removal of the Law School to the centre of the city, at Broad and Chestnut streets, in the immediate vicinity of the law courts, is a change which was dictated by every reason of convenience and propriety; it effects a great saving of time on the part of the Faculty and students, and enables the latter to have far more frequent access to the law courts, which in this school correspond to the laboratories and the hospital wards in the Medical Department. The addition to the curriculum of a third year naturally caused a temporary falling off in the number of students, but the increased teaching force and the improved facilities will, with equal certainty, result in rapid gains which will soon far exceed the temporary losses. All interested in this important department of the University are to be congratulated upon the present satisfactory position; but it should be maintained steadily as an object of prime importance, that must be accomplished as soon as possible, that the Law School is to be housed in a suitable, dignified building of its own. It is probable that the position and the arrangements of this building might be made such as to accommodate the

offices of the University and the places of meeting for the various associations connected with the University.

The Dental Department continues to prosper (see Appendix 10), and its success is so great that the effect of the approaching prolongation of its term may be looked forward to with confidence. This is especially the case because all dental schools in respectable standing will make an equal prolongation simultaneously. It has been a source of regret that in spite of the growing recognition of the importance of thorough dental education, there has, as yet, been no endowment to given this department. There is, however, an urgent need for it; extended facilities are required and additional teachers should be added to the Faculty. It is to be hoped that a remembrance of the immense benefits conferred on society by the science and art of dentistry in their present advanced form will prompt to such liberal endowment of this department as will enable it to get abreast with advances made in other lines of scientific training. I feel that the time is approaching when a special effort in this direction would meet with a hearty response from all sections of the community.

The progress of the Veterinary Department has presented many points of interest, but, owing to the recent change in the office of Dean, necessitated by the resignation of Prof. R. S. Huidekoper, there is no report from this department. The most important occurrence was the passing of an appropriation of \$25,000 by the State Legislature for the Veterinary Hospital. This appropriation was secured exclusively through the indefatigable exertions of Dr. Huidekoper, to whom the department must ever remain under a debt of gratitude, not only for such services as these, but for the admirable curriculum and the high standard of requirements adopted upon his recommendation. In order to facilitate the administration of this department, a complete official separation was made between the school and the hospital by resolution of the Board of Trustees, dated September 10, 1889.

The school remains in the charge of the Committee of your Board and of the Veterinary Faculty; while a Board of Managers (see Appendix 11) was created, to whom was entrusted the entire management of the hospital. The continued

liberality of the family of your late colleague, J. B. Lippincott, Esq., will, with the improved methods of administration introduced under the above reorganization, result in the financial prosperity both of school and hospital, so that fair salaries can be paid to the Faculty, and the hospital can be conducted without deficit, or even, it is hoped, ere long at a profit.

Your attention is called to the extent of original publications by the University staff during the past two years (Bibliography, Appendix 13), as indicating approximately the activity of its members in all departments of professional research, and showing how the intellectual forces here at work extend far beyond the classes attending instruction. Some of the brief titles there recorded indicate the labor and the ripened thought of years; some are of works that have secured for their authors honors and rewards both here and in foreign lands; and all are evidences of that diligence in the pursuit of literature and science which ought to characterize the members of a vigorous university.

In conclusion, I beg to call attention to the financial condition of the University as shown in Appendix 14, which is an abridgment of the two admirable annual reports made by your Treasurer, and to the record there made of the donations received during the last two years.

WILLIAM PEPPER,
Provost.

APPENDIX I.

DEATHS.

- Mar. 31, 1889.** Edward Tunis Bruen, M.D., Assistant Professor of Physical Diagnosis.
Dec. 27, 1889. James Howell Hutchinson, M.D., Trustee.

RESIGNATIONS.

- Nov. 1, 1887.** Robert P. Robins, M.D., as Instructor in Physical Diagnosis.
Mar. 6, 1888. Frederick A. Muhlenberg, D.D., LL.D., as Professor of the Greek Language and Literature.
April 3, 1888. John Ashhurst, Esq., as Trustee.
May 7, 1888. Richard A. F. Penrose, M.D., LL.D., as Professor of Obstetrics and of the Diseases of Women and Children.
May 15, 1888. J. William White, M.D., as Director of Physical Education.
Nov. 5, 1888. William Osler, M.D., as Professor of Clinical Medicine.
“ “ George E. De Schweinitz, M.D., as Prosector to the Chair of Anatomy.
Dec. 4, 1888. A. Sydney Roberts, M.D., as Instructor in Orthopædic Surgery.
“ “ D. Hayes Agnew, M.D., LL.D., as Professor of the Principles and Practice of Surgery.
“ “ J. I. Clark Hare, M.D., LL.D., as Professor of the Institutes of Law.
“ “ Milton Powel, D.D.S., as Assistant Demonstrator of Operative Dentistry.
April 23, 1889. James Tyson, M.D., as Professor of Pathology and Morbid Anatomy.
May 7, 1889. Otis H. Kendall, Ph.D., as Assistant Professor of Mathematics.
“ “ J. William White, M.D., as Demonstrator of Surgery.
“ “ Edward Martin, M.D., as Assistant Demonstrator of Surgery.

- May 7, 1889. Harry R. Wharton, M.D., as Instructor in Clinical Surgery.
- May 28, 1889. Howard A. Kelley, M.D., as Associate Professor of Obstetrics.
- June 20, 1889. William D. Marks, Ph.B., C.E., as Whitney Professor of Dynamical Engineering.
- Aug. 6, 1889. Rush S. Huidekoper, M.D., Veterinarian (Alfort), as Professor of Veterinary Anatomy and Pathology.

APPOINTMENTS.

GENERAL.

- Nov. 1, 1887. Rt. Rev. Ozi W. Whitaker, D.D., to be Trustee.
- “ “ John Barnard Gest, A.M., to be Trustee.
- June 19, 1888. Morris Jastrow, Jr., Ph.D., to be Assistant Librarian.
- Oct. 2, 1888. Richard A. F. Penrose, M.D., LL.D., to be Emeritus Professor of Obstetrics and of Diseases of Women and Children.
- May 7, 1889. Joseph S. Harris, to be Trustee.
- Jan. 1, 1889. D. Hayes Agnew, M.D., LL.D., to be Emeritus Professor of Surgery and Honorary Professor of Clinical Surgery.
- June 4, 1889. J. I. Clark Hare, LL.D., to be Emeritus Professor of the Institutes of Law.
- Oct. 4, 1889. Rev. Robert Ellis Thompson, D.D., to be Chaplain.
- “ “ Rev. George Stuart Fullerton, B.D., to be Chaplain.

UNLIMITED, OR FOR A PERIOD OF THREE YEARS OR MORE.

COLLEGE DEPARTMENT.

- May 7, 1888. William A. Lamberton, A.M., to be Professor of the Greek Language and Literature.
- May 29, 1888. Simon N. Patten, Ph.D., to be Professor of Political Economy.
- Sept. 10, 1888. Edgar F. Smith, Ph.D., to be Professor of Analytical Chemistry.
- Jan. 1, 1889. E. Otis Kendall, LL.D., to be Honorary Dean of the Faculty.
- “ “ James McKeen Cattell, Ph.D., to be Professor of Psychology.

- June 4, 1889. Arthur W. Goodspeed, Ph.D., to be Assistant Professor of Physics.
- Aug. 6, 1889. George E. Fisher, A.M., to be Assistant Professor of Mathematics.
- Sept. 24, 1889. Edwin S. Crawley, B.S., to be Assistant Professor of Mathematics.
- “ “ Francis A. Jackson, A.M., to be Secretary of the Faculty.
- Oct. 4, 1889. Felix E. Schelling, A.M., to be Assistant Professor of English Literature.

DEPARTMENT OF MEDICINE.

- May 7, 1888. Howard A. Kelley, M.D., to be Associate Professor of Obstetrics.
- “ “ Barton Cooke Hirst, M.D., to be Associate Professor of Obstetrics.
- June 19, 1888. Joseph Leidy, M.D., LL.D., to be Emeritus Dean.
- Jan. 1, 1889. John Ashhurst, Jr., M.D., to be JOHN RHEA BARTON Professor of Surgery.
- “ “ James Tyson, M.D., to be Professor of Clinical Medicine.
- Feb. 5, 1889. J. William White, M.D., to be Professor of Clinical Surgery.
- “ “ John Guiteras, M.D., to be Professor of Pathology and Morbid Anatomy.
- Mar. 5, 1889. De Forest Willard, M.D., to be Clinical Professor of Orthopædic Surgery.
- “ “ George A. Piersol, M.D., to be Professor of Histology and Embryology.
- “ “ Samuel G. Dixon, M.D., to be Professor of Hygiene.
- June 4, 1889. John H. Musser, M.D., to be Assistant Professor of Clinical Medicine.
- Aug. 6, 1889. Barton Cooke Hirst, M.D., to be Professor of Obstetrics.
- Sept. 24, 1889. John Marshall, M.D., Nat.Sc.D., to be Assistant Professor of Chemistry.

DEPARTMENT OF LAW.

- June 4, 1889. Samuel S. Hollingsworth, to be Professor of the Law of Contracts and Corporations and Pleading at Law.
- “ “ George S. Graham, to be Professor of Criminal Law.

DEPARTMENT OF BIOLOGY.

- Feb. 7, 1888. Charles S. Dolley, M.D., to be Professor of General Biology.
- Feb. 5, 1889. James McKeen Cattell, Ph.D., to be Professor of Psychology.

DEPARTMENT OF VETERINARY SURGERY.

- Sept. 24, 1889. Simon J. J. Harger, V.M.D., to be Assistant Professor of Veterinary Anatomy.

DEPARTMENT OF PHILOSOPHY.

- Feb. 7, 1888. Horace Jayne, M.D., to be Professor of Biology.
- “ “ John A. Ryder, Ph.D., to be Professor of Biology.
- “ “ Charles S. Dolley, M.D., to be Professor of Biology.
- “ “ William Powell Wilson, Sc.D., to be Professor of Botany.
- “ “ John Bach McMaster, A.M., to be Professor of American History.
- “ “ Samuel P. Sadtler, Ph.D., to be Professor of Organic Chemistry.
- “ “ Oswald Seidensticker, Ph.D., Litt.D., to be Professor of Germanic Philology.
- Oct. 2, 1888. Simon N. Patten, Ph.D., to be Professor of Political Economy.
- “ “ William A. Lamberton, A.M., to be Professor of the Greek Language and Literature.
- “ “ Edgar F. Smith, Ph.D., to be Professor of Analytical Chemistry.
- Feb. 5, 1889. James McKeen Cattell, Ph.D., to be Professor of Psychology.
- June 4, 1889. Edward T. Reichert, M.D., to be Professor of Physiology.

ANNUAL, OR FOR A PERIOD LESS THAN THREE YEARS.

COLLEGE DEPARTMENT.

- Oct. 4, 1887. A. H. P. Leuf, M.D., to be Assistant Director of Physical Education.
- “ “ Edwin A. Kelley, to be Instructor in Mammalian Anatomy.

Feb.	7, 1888.	Marshall F. Pugh, B.S., E.M., to be Assistant in Metallurgy and Mining.
Sept.	4, 1888.	
May.	7, 1889.	
April	3, 1888.	George F. Stradling, A.B., to be Hector Tyndale Fellow.
April	2, 1889.	
May	29, 1888.	Carl Hering, B.S., to be Instructor in Electrical Engineering.
June	19, 1888.	Felix E. Schelling, A.M., to be Assistant Professor of English Literature.
"	"	Edgar P. Earle, B.S., M.E., to be Instructor in Mechanical Engineering.
June	5, 1888.	A. H. P. Leuf, M.D., to be Director of Physical Education.
June	19, 1888.	James A. Montgomery, A.B., to be Instructor in Hebrew.
May	7, 1889.	
June	19, 1888.	James McKeen Cattell, M.D., to be Lecturer on Psycho-Physics.
Sept.	4, 1888.	Edwin S. Crawley, B.S., to be Instructor in Mathematics.
May	7, 1889.	
Sept.	4, 1888.	Arthur W. Goodspeed, A.B., to be Instructor in Physics.
"	"	Edward P. Cheyney, A.M., to be Instructor in History and Latin History.
May	7, 1889.	
Sept.	4, 1888.	Hugo A. Rennert, B.S., to be Instructor in French and German.
May	7, 1889.	
Oct.	4, 1887.	Hobart A. Hare, M.D., to be Instructor in Physiology.
Sept.	4, 1888.	
"	"	Benjamin Franklin, B.S., C.E., to be Instructor in Civil Engineering.
May	7, 1889.	
Sept.	4, 1888.	Samuel Brown Wylie, A.M., to be Instructor in Mathematics.
"	"	Roland P. Falkner, Ph.D., to be Instructor in Book-keeping.
May	7, 1889.	
Oct.	4, 1887.	Milton W. Greenman, to be Assistant in Biology.
Sept.	4, 1888.	" " " to be Assistant Instructor in Biology.
May	7, 1889.	
Sept.	10, 1888.	Harry F. Keller, Ph.Nat.D., Instructor in Organic Chemistry.
May	7, 1889.	
Sept.	10, 1888.	Charles A. Peterson, A.B., B.S., to be Instructor in Electrical Engineering.
June	20, 1889.	
Jan.	1, 1889.	Horace Jayne, M.D., to be Dean of the Faculty.
Feb.	5, 1889.	Francis N. Thorpe, Ph.D., to be Lecturer on Civil Government.

- May 7, 1889. William Romaine Newbold, A.M., to be Instructor in Latin.
- " " Charles Hermann Haupt, to be Instructor in Civil Engineering.
- " " Lee K. Frankel, B.S., P.C., to be Instructor in Analytical Chemistry.
- " " Charles Meredith Burk, to be Assistant Instructor in Zoölogy.
- June 20, 1889. Daniel B. Shumway, B.A., to be Instructor in English.
- " " Edgar Kidwell, A.M., M.E., to be Instructor in Dynamical Engineering.

DEPARTMENT OF MEDICINE.

- Oct. 4, 1887. Joseph Price, M.D., to be Demonstrator of Practical Obstetrics.
- " " Barton Cooke Hirst, M.D., to be Lecturer on Clinical and Operative Obstetrics.
- " " Henry W. Cattell, M.D., to be Assistant Demonstrator of Chemistry.
- June 19, 1888. John H. Musser, M.D., to be Instructor in Clinical Medicine, 4th year.
- Nov. 1, 1887. Barton Cooke Hirst, M.D., to be Demonstrator of Practical Obstetrics.
- " " John B. Roberts, M.D., to be Assistant Demonstrator of Anatomy.
- June 19, 1888. James Tyson, M.D., to be Dean and Secretary.
- " " Roland G. Curtin, M.D., to be Lecturer on Physical Diagnosis.
- May 28, 1889. Charles K. Mills, M.D., to be Lecturer on Mental Diseases.
- May 28, 1889. Samuel D. Risley, M.D., to be Instructor in Ophthalmology.
- June 19, 1888. De Forest Willard, M.D., to be Lecturer on Orthopædic Surgery.
- " " Adolph W. Miller, M.D., to be Lecturer on Materia Medica and Pharmacy, and Instructor in Practical Pharmacy.
- May 28, 1889. John Marshall, M.D., Nat.Sc. D. (Tübingen), to be Demonstrator of Practical Chemistry.
- June 19, 1888. George A. Piersol, M.D., to be Demonstrator of Normal Histology.

June 19, 1888.	Henry F. Formad, M.D., to be Demonstrator of
May 28, 1889.	Morbid Anatomy and Pathological Histology, Lecturer on Experimental Pathology, and Librarian of the Stillé Medical Library.
June 19, 1888.	Walter M. L. Ziegler, M.D., to be Instructor in
May 28, 1889.	Otology.
June 19, 1888.	Carl Seiler, M.D., to be Instructor in Laryngology.
May 28, 1889.	
June 19, 1888.	Albert L. A. Toboldt, M.D., to be Assistant Demonstrator of Practical Pharmacy.
" "	Harry R. Wharton, M.D., to be Instructor in Clinical Surgery and Lecturer on the Surgical Diseases of Children.
" "	Richard H. Harte, M.D., to be Demonstrator of
May 28, 1889.	Osteology.
June 19, 1888.	John B. Deaver, M.D., to be Demonstrator of Anatomy, and Lecturer on Topographical Anatomy.
May 28, 1889.	
June 19, 1888.	Francis X. Dercum, M.D., to be Instructor in Nervous Diseases.
May 28, 1889.	
June 19, 1888.	Thomas R. Neilson, M.D., to be Assistant Demonstrator of Anatomy, and Instructor in Genito-Urinary Diseases.
" "	Edmund W. Holmes, M.D., to be Assistant Demonstrator of Anatomy.
May 28, 1889.	
June 19, 1888.	Judson Daland, M.D., to be Instructor in Clinical
May 28, 1889.	Medicine.
June 19, 1888.	William A. Edwards, M.D., to be Instructor in Clinical Medicine.
" "	J. Hendrie Lloyd, M.D., to be Instructor in Electro-Therapeutics.
May 28, 1889.	
June 19, 1888.	A. Sydney Roberts, M.D., to be Instructor in Orthopædic Surgery.
" "	J. P. Crozer Griffith, M.D., to be Assistant to the Professor of the Theory and Practice of Medicine.
" "	Henry W. Stelwagon, M.D., to be Instructor in Dermatology.
May 28, 1889.	
June 19, 1888.	William L. Taylor, M.D., to be Instructor in Clinical
May 28, 1889.	Gynæcology.
June 19, 1888.	Gwilym G. Davis, M.D., to be Assistant Demonstrator of Surgery.
May 28, 1889.	
June 19, 1888.	Edward Martin, M.D., to be Instructor in Operative Surgery, Assistant Demonstrator of Surgery and Lecturer on Emergency Surgery.

- June 19, 1888. Hobart A. Hare, M.D., to be Instructor in Physical Diagnosis, Demonstrator of Therapeutics and Instructor in Physiology.
- “ “ W. Frank Haehnlen, M.D., to be Lecturer on Clinical and Operative Obstetrics.
- May 28, 1889.
- June 19, 1888. John K. Mitchell, M.D., to be Instructor in Clinical Medicine.
- May 28, 1889.
- June 19, 1888. George H. Chambers, M.D., to be Assistant Demonstrator of Normal Histology.
- Sept. 4, 1889.
- June 19, 1888. James K. Young, M.D., to be Assistant Demonstrator of Surgery and Instructor in Orthopaedic Surgery.
- Mar. 5, 1889.
- Sept. 10, 1889.
- June 19, 1888. David D. Richardson, M.D., to be Assistant Demonstrator of Anatomy and Curator of Wister and Horner Museum.
- May 28, 1889.
- Nov. 1, 1887. John H. Musser, M.D., to be Instructor in Clinical Medicine.
- June 19, 1888.
- Dec. 6, 1887. John B. Roberts, M.D., to be Assistant Demonstrator of Anatomy.
- June 19, 1888.
- May 28, 1889.
- June 19, 1888. Henry W. Cattell, M.D., to be Assistant Demonstrator of Chemistry.
- May 28, 1889.
- June 19, 1888. Allen J. Smith, M.D., to be Assistant Demonstrator of Morbid Anatomy and Pathological Histology.
- May 28, 1889.
- June 19, 1888. Robert Formad, V.D.M., to be Assistant Demonstrator of Normal Histology.
- May 28, 1889.
- June 19, 1888. T. Passmore Berens, M.D., to be Instructor in Physical Diagnosis.
- “ “ Arthur W. Stevens, M.D., to be Instructor in Physical Diagnosis.
- May 28, 1889.
- June 19, 1888. Andrew J. Plumer, M.D., to be Assistant Demonstrator of Morbid Anatomy and Pathological Histology.
- May 28, 1889.
- June 19, 1888. Edward Tatum, M.D., to be Demonstrator of Physiology.
- “ “ Guy Hinsdale, M.D., to be Instructor in Physical Diagnosis.
- May 28, 1889. Benjamin F. Stahl, M.D., to be Instructor in Physical Diagnosis.
- “ “ Seneca Egbert, M.D., to be Demonstrator of Hygiene.
- Mar. 5, 1889. John C. Heisler, M.D., to be Prosector to the Chair of Anatomy.
- May 7, 1889. Walter D. Green, M.D., to be Assistant Demonstrator of Surgery.
- May 28, 1889.

May 7, 1889.	Charles B. Penrose, M.D., to be Instructor in Clinical Surgery.
May 28, 1889.	Harry R. Wharton, M.D., to be Demonstrator of Surgery.
" "	Edward Martin, M.D., to be Instructor in Clinical Surgery.
May 28, 1889.	Albert L. A. Toboldt, M.D., to be Assistant Instructor in Practical Pharmacy.
" "	J. P. Crozer Griffith, M.D., to be Instructor in Clinical Medicine.
" "	Hobart A. Hare, M.D., to be Demonstrator of Experimental Therapeutics and Instructor in Physical Diagnosis.
" "	Thomas R. Neilson, M.D., to be Instructor in Genito-Urinary Diseases.
" "	Gwilym G. Davis, M.D., to be Instructor in Clinical and Operative Surgery, and Instructor in Emergency Surgery.
" "	Harry C. Deaver, M.D., to be Assistant Demonstrator of Anatomy.
" "	Harry H. Kynett, M.D., to be Assistant Demonstrator of Anatomy.
" "	Walter Chrystie, M.D., to be Instructor in Physical Diagnosis.
" "	Frederick C. Packard, M.D., to be Instructor in Physical Diagnosis.

AUXILIARY FACULTY OF MEDICINE.

Oct. 4, 1887.	Samuel G. Dixon, M.D., to be Professor of Hygiene.
Nov. 1, 1887.	John J. Reese, M.D., to be Professor of Medical Jurisprudence and Toxicology.
Nov. 5, 1888.	
Nov. 5, 1889.	
Nov. 1, 1887.	Samuel B. Howell, M.D., to be Professor of Mineralogy and Geology.
Nov. 5, 1888.	
Nov. 1, 1887.	Joseph T. Rothrock, M.D., B.S., to be Professor of Botany.
Nov. 5, 1888.	
Nov. 5, 1889.	
Nov. 1, 1887.	Joseph Leidy, M.D., LL D., to be Professor of Zoölogy and Comparative Anatomy.
Nov. 5, 1888.	
Nov. 5, 1889.	
Nov. 1, 1887.	
Nov. 5, 1888.	Samuel G. Dixon, M.D., to be Professor of Hygiene.
Nov. 5, 1889.	

- Dec. 4, 1888. Seneca Egbert, M.D., to be Demonstrator of Hygiene.
 Nov. 5, 1889. " " Edward D. Cope, Ph.D., to be Professor of Mineral-
 ogy and Geology.

DEPARTMENT OF PHILOSOPHY.

- Feb. 7, 1888. Francis N. Thorpe, Ph.D., to be Lecturer on Ameri-
 can History.
 June 1, 1889. George Stuart Fullerton, B.D., to be Dean of the
 Faculty.

DEPARTMENT OF DENTISTRY.

- Nov. 1, 1887. Milton Powel, D.D.S., to be Assistant Demonstrator
 of Operative Dentistry.
 June 19, 1888. R. Hamill D. Swing, D.D.S., to be Assistant Demon-
 strator of Mechanical Dentistry.
 June 19, 1888. " " Robert Huey, D.D.S., to be Lecturer on Operative
 Dentistry.
 " " William Diehl, D.D.S., to be Demonstrator of Opera-
 tive Dentistry.
 " " J. Judson Edwards, D.D.S., to be Demonstrator of
 Mechanical Dentistry.
 " " George G. Milliken, D.D.S., to be Demonstrator of
 Operative Dentistry.
 " " James E. Loder, D.D.S., to be Assistant Demonstra-
 tor of Operative Dentistry.
 " " Henry B. McFadden, D.D.S., to be Assistant Demon-
 strator of Mechanical Dentistry.
 " " Ambler Tees, Jr., D.D.S., to be Assistant Demonstra-
 tor of Mechanical Dentistry.
 " " Joseph W. White, D.D.S., to be Assistant Demon-
 strator of Operative Dentistry.
 " " Frederick W. Amend, Jr., D.D.S., to be Assistant
 Demonstrator of Mechanical Dentistry.
 Oct. 2, 1888. James Truman, D.D.S., to be Secretary of the
 Faculty.
 " " Horace McCanna, D.D.S., to be Assistant Demon-
 strator of Mechanical Dentistry.
 " " J. Edward Dunwoody, D.D.S., to be Assistant Dem-
 onstrator of Operative Dentistry.
 " " Milton N. Keim, Jr., D.D.S., to be Assistant Dem-
 onstrator of Mechanical Dentistry.

- Dec. 4, 1888.** Edward C. Kirk, D.D.S., to be Lecturer on Operative Dentistry.
- June 20, 1889.** James Truman, D.D.S., to be Dean of the Faculty.
 John G. Fuller, D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.
 Charles A. E. Codman, D.D.S., to be Assistant Demonstrator of Operative Dentistry.
 Frederick A. Peese, D.D.S., to be Demonstrator of Crown and Bridge Work.
 John D. Thomas, D.D.S., to be Lecturer on Nitrous Oxide.

DEPARTMENT OF LAW.

- Nov. 5, 1888.** C. Stuart Patterson, A.M., to be Dean of the Faculty.
- Mar. 5, 1889.** A. Sydney Biddle, A.M., to be Secretary of the Faculty.

DEPARTMENT OF VETERINARY MEDICINE.

- Dec. 4, 1888.** Henry Formad, M.D., to be Demonstrator of Pathology and Morbid Anatomy.
- “ “ Simon J. J. Harger, V.D.M., to be Demonstrator of Veterinary Anatomy.
- “ “ Charles Williams, V.D.M., to be Demonstrator of Surgical Pathology.
- “ “ John Marshall, M.D., Nat.Sc.D., to be Demonstrator of Practical Chemistry.
- Sept. 4, 1889.** John Marshall, M.D., Nat.Sc.D., to be Assistant Professor and Dean of the Faculty.
- Dec. 4, 1888.** Alexander Glass, V.S., to be Demonstrator of Therapeutics, Materia Medica and Pharmacy.
- “ “ Garrett Edwards, to be Farrier and Demonstrator of Forging and Horseshoeing.
- “ “ Louis Olvy Lusson, V.M.D., to be Demonstrator of Internal Pathology and Zoötechnics.
- “ “ Guldin R. Hartman, V.M.D., to be Assistant Demonstrator of Veterinary Anatomy.
- Sept. 4, 1889.** Assistant Professor John Marshall, M.D., to be Dean of the Faculty.
- Oct. 4, 1889.** Chalkley H. Magill, V.M.D., to be Demonstrator of Operative Surgery.

DEPARTMENT OF BIOLOGY.

- Oct. 4, 1887. Hobart A. Hare, M.D., to be Instructor in Physiology.
- “ “ Edwin A. Kelley, to be Instructor in Mammalian Anatomy.
- Dec. 4, 1888. Edwin A. Kelley, to be Instructor in Zoölogy.
- Oct. 4, 1887. Milton W. Greenman, to be Instructor in Biology.
- Dec. 4, 1888. Emily Gregory, to be Fellow in Biology.
- “ “ Charles Meredith Burk, to be Assistant in Zoölogy.
- “ “ Edward Bancroft, to be Assistant to the Professor of Comparative Embryology.
- “ “ George Fetterolf, to be Assistant to the Professor of Botany.
- “ “ Robert S. Maison, to be Assistant to the Professor of Botany.
- “ “ Henry S. Kiersted, to be Assistant to the Professor of Botany.
- “ “ Jesse Greenman, to be Assistant to the Professor of Botany.
- Jan. 1, 1889. Charles S. Dolley, D.D., to be Dean of the Faculty.
- Mar. 5, 1889. William Powell Wilson, D.D., to be Secretary of the Faculty.

APPENDIX II.

An ordinance to sell and convey a certain lot of ground to the Trustees of the University of Pennsylvania.

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain—

That the Mayor of the city be authorized to sign and affix the seal of the city to a deed, in form to be approved by the City Solicitor, which shall convey unto the Trustees of the University of Pennsylvania and their successors, all that certain lot or piece of ground situated in the Twenty-seventh Ward of the City of Philadelphia, described as follows, viz.: Beginning at a point the intersection of the westerly line of Thirty-sixth Street with the southeasterly line of Woodland Avenue, thence extending along the southeasterly line of said Woodland Avenue south $70^{\circ} 18' 7''$ west two hundred and forty-eight (248)

feet ; three (3) inches to ground occupied by the City Police Station ; thence along said ground south $4^{\circ} 20' 26''$ east one hundred and fifteen (115) feet six (6) inches to the northerly line of Spruce Street ; thence along said line $78^{\circ} 59'$ east one hundred and eighty-two (182) feet ten and five-eighths ($10\frac{5}{8}$) inches to the westerly line of said Thirty-sixth Street ; thence along the same north $10^{\circ} 1'$ east two hundred and thirty-seven (237) feet eleven (11) inches to the southeasterly line of Woodland Avenue and place of beginning, in consideration of the sum of one dollar to have and to hold the said lot to the said Trustees for the use of the said University for its authorized educational purposes, subject also to the following conditions: That the said land shall never be alienated by the Trustees of the University of Pennsylvania without the consent of the city ; and further, that no buildings other than such as shall be essential to the educational system of the University shall be erected thereon, and further, that the said Trustees will erect and maintain a fire-proof library building and provide means to maintain it as a free library of reference open to the entire community, and that work thereon shall be begun within four months from the date of conveyance.

Approved this Twenty-first day of March, A.D. 1888.

EDWIN H. FITLER,

Mayor of Philadelphia.

Attest: HENRY W. ROBERTSON,

Assistant Clerk of Select Councils.

APPENDIX III.

REPORT OF THE LIBRARIAN.

UNIVERSITY OF PENNSYLVANIA, *October 1st, 1889.*

WILLIAM PEPPER, M.D., LL.D., PROVOST.

DEAR SIR:—Since January 31, 1888, the date of the last report, the most noteworthy event in the history of the Library has been the beginning of the erection of a much-needed new Library building, the corner-stone of which was laid the 15th of last October, and the construction of which was sufficiently advanced by the opening of the present College year to render it available for the storage of books.

The accessions to the Library have been very valuable during this period, aggregating 11,573 bound volumes and 14,850 unbound volumes, pamphlets and periodicals.

Among the most conspicuous of these is the noted philological library of the late Professor F. A. Pott, of the University of Halle, purchased by private subscription by friends of the University, mainly through the efforts of Professor McElroy. It consists of about 4,000 works, representing almost every prominent language and dialect.

A remarkably fine collection of Arabic books, numbering 1,136 volumes, to be supplemented by works in other branches of Semitic literature, has recently been acquired with funds obtained in the same way by Professor Jastrow.

General Samuel Wylie Crawford presented nearly 1,000 volumes, on a great variety of subjects, scientific, literary and historical.

We are indebted to the widow of Dr. Ferdinand V. Hayden, formerly Professor of Geology in the University, for 350 bound volumes and 1,600 unbound volumes, pamphlets and periodicals relating to the natural sciences, from the private library of her distinguished husband.

Professor Frederick Prime, Jr., has given us 570 bound volumes and 300 unbound books and periodicals, of his own collection, on chemistry, metallurgy, geology, mineralogy and allied topics.

Charles Hare Hutchinson, Esq., besides presenting numerous books from his private library, generously contributed the cost of many works required in the Department of Greek.

Francis Campbell Macauley, Esq., made a valuable gift of 300 volumes of Italian literature.

To the Class of 1889 in the College Department we are indebted for the handsome present of 75 volumes of English literature of the Elizabethan period, and to Mr. Hisaya Iwasaki, an undergraduate in the same Department, for 132 books in Japanese.

Our store of public documents has gained 3,000 volumes from various sources, making it one of the largest collections of that kind in this vicinity.

The Tobias Wagner Library Fund has been drawn upon for 106 volumes, philosophical, literary and historical.

The Henry Seybert Library of Modern Spiritualism and the Krauth Library of Philosophy have both received accessions, and, through the liberality of B. B. Comegys, Esq., a collection of books is forming, to be known as "The B. B. Comegys, Jr., Library of Philosophy."

The Librarian of the Law Department reports 5,302 volumes in that library, 5,116 of these being comprised in the Biddle collection. These

books are now very satisfactorily arranged in a fine suite of rooms at Broad and Chestnut Streets.

The Librarian of the Biological Department reports 1,400 bound volumes and 1,500 unbound books and pamphlets in that library, and states that 28 periodicals are received, of which 15 are in English, 11 in German, 1 in Swedish and 1 in French.

The fire which occurred in the Medical building on the 31st of May, 1888, necessitated the immediate removal of the Stillé Library to the Biological Laboratory, and during the following summer the books were brought to the College building where they were catalogued last winter. It is matter of regret that many of them were damaged by the water used to extinguish the fire which threatened them; and about one-fourth of the entire collection will have to be repaired or rebound.

The cataloguing of the whole Library has proceeded as usual, and since the last report 20,389 cards have been written, representing 6,168 works, comprised in 12,254 volumes. In addition to this, nearly all books heretofore catalogued have been numbered and are now ready to be placed on the shelves of the new Library building, so soon as these are ready to receive them. \$887.95 of a sum of \$950, appropriated by the Board of Trustees of the University for the binding of books, has been expended in binding 3,435 volumes, leaving a balance of \$62.05 for future use.

Respectfully submitted,

GREGORY B. KEEN,
Librarian.

APPENDIX IV.

UNIVERSITY LECTURE ASSOCIATION.

THE following Lectures and Courses of Lectures were delivered under the auspices of the Association during the years 1888 and 1889 respectively:

1888.

1. Thirteen lectures on the AMERICAN REVOLUTION, Mr. John Fiske.
2. Two lectures on AMERICAN HISTORY, Prof. J. B. McMaster.
3. Three lectures on MIGRATION, CONQUEST AND EXPANSION, Mr. J. Foster Kirk.

4. Four lectures on GREEK LYRIC POETRY, Prof. Herbert Weir Smyth.
5. Six lectures on MOHAMMED AND MOHAMMEDANISM, Prof. Morris Jastrow, Jr.
6. Ten lectures on PSYCHO-PHYSICS, Prof. James McK. Cattell.
7. A lecture on the FRENCH DRAMA, M. Coquelin.

1889.

1. A lecture on ASSYRIAN AND HEBREW CHRONICLES, Prof. Morris Jastrow, Jr.
2. Three lectures on PHASES OF ORIENTAL LIFE, Rev. H. Clay Trumbull, D.D.
3. A lecture on the ASSYRIAN MONUMENTS AND THE HEBREW PROPHETS, Prof. D. G. Lyon.
4. A lecture on the HITTITES, Dr. W. H. Ward.
5. A lecture on RECENT ARCHÆOLOGY AND THE RELIGIOUS IDEA OF THE NEW TESTAMENT, Prof. Francis Brown.
6. A lecture on the STONE-LORE OF PALESTINE AND THE OLD TESTAMENT, Prof. Richard Gottheil.
7. A lecture on EGYPT AND THE HEBREWS, Prof. A. L. Frothingham, Jr.
8. A lecture on the ZOÖLOGY OF THE BIBLE, Rev. H. C. McCook, D.D.
9. Four lectures on SHAKESPEARE, Horace Howard Furness, LL.D.
10. Three lectures on JAPAN AND ITS CUSTOMS, Prof. E. S. Morse.
11. A lecture on TEN DAYS IN GREECE, Samuel Dickson, Esq.
12. Ten lectures on SCENES AND CHARACTERS IN AMERICAN HISTORY, Mr. John Fiske.
13. Three lectures on the GREEK HISTORIANS AND ORATORS, Prof. Wm. A. Lamberton.

APPENDIX V.

UNIVERSITY OF PENNSYLVANIA, April 10th, 1889.

TO THE OFFICERS AND MEMBERS OF THE ACADEMY OF NATURAL SCIENCES :

It has been felt for many years that if the various leading scientific and learned institutions of Philadelphia could be approximated so as to facilitate consultation of their collections and attendance upon

their courses of instruction, it would inevitably result in great good to the community and to each and all of the institutions.

The absence of any suitable location where such a concentration might be effected made it fruitless to discuss the advantages which would ensue.

Recent events have made available an adequate extent of ground in immediate proximity to the University of Pennsylvania, as a tract of ten acres, extending from Thirty-fourth Street to the lines of the Pennsylvania Railroad at South Street, and from Locust to Spruce Streets, has been bought from the city.

The special advantages of this location are its central and highly accessible position, adjoining South Street Station; five minutes from Broad Street Station; twenty minutes from Broad and Walnut Streets by the Walnut Street bridge; ten minutes from Powelton Avenue Station; and the fact that it forms the northern boundary of the Park of eighty acres which is about to be laid out by the city.

It is felt by the authorities of the University to be a public duty to offer immediately to certain institutions the opportunity of co-operating in the development there of a grand centre of scientific and educational activity. It will probably be appreciated by all that if such co-operation can be secured, Philadelphia would possess advantages not enjoyed by any city of the world. The juxtaposition of several great independent institutions, administered in harmony for the common purposes of the increase and diffusion of knowledge, would, it is conceived, vastly increase the dignity of each institution and render its work more economical and effective. All such institutions are the servants and beneficiaries of the public, and that which improves the public service must strengthen the institution.

It is felt to be of prime importance in approaching this great question, that the co-operation of the Academy of Natural Sciences should be secured. The collections of the Academy are of immense extent and priceless value; the library is rich and admirably selected. The Academy is a teacher of science, as well as a vast treasure-house for the investigator and the advanced student. The University of Pennsylvania is forced to push ahead in lines of teaching and of collecting altogether parallel with those of the Academy. If these two institutions could be approximated, the resources and efficiency of each would be enhanced. If they continue to work at a distance, the future discloses nothing but an incalculable waste in competitive duplication of teachers, laboratories and museums, while the public will never be enabled to profit fully by their advantages.

In venturing to address this communication to your learned body, we

are keenly alive to the delicacy of our action, for we are as proud as any others can be of the high repute and splendid position and prospects of the Academy. It is of course understood that nothing in the proposed plan would in the least degree compromise the complete independence of the Academy. On the other hand, it is believed that incomparably superior advantages would result for the development to the highest degree of its functions as a teaching and collecting institution. It would at the same time manifestly be to the interest of the University to have thus preserved the entire autonomy of the Academy, with its large body of scientific workers, with its splendid collections constantly reinforced from all quarters, and with its growing endowments drawn from independent sources. A sense of public duty therefore compels us to submit the following proposition for your consideration :

That if the Academy of Natural Sciences will remove to the location above described, the University of Pennsylvania will transfer whatever available site may be selected by the Academy, of ample size for all future needs for museum and library purposes. The transfer shall be in absolute fee simple, subject to no condition or covenant whatsoever. The terms of the transfer shall be as favorable to the Academy as possible, certainly not exceeding the cost price of said ground, and it is hoped that new funds can be secured to effect a considerable reduction in the charge upon the Academy, and to enable the land to be carried without charge for interest until the Academy is ready to move. This definite proposition is accompanied by the suggestion that, if the Academy finds it practicable and desirable to accept this proposition, a syndicate shall be formed by friends of the two institutions to take over from the Academy, at a proper figure, the present grounds and building of the Academy (at Nineteenth and Race Streets), the purchase-money being advanced to enable the Academy to erect its new building upon its new site in West Philadelphia.

Trusting that this communication will be received in the spirit in which it is submitted, I have the honor to remain, on behalf of the authorities of the University,

WILLIAM PEPPER, *Provost.*

GERMANTOWN, PA., May 30th, 1889.

DR. WM. PEPPER.

MY DEAR SIR :—I regret that an engagement with our local School Board prevented me from being at the Academy on Tuesday evening, when the inclosed resolutions were passed ; but it affords me great

pleasure to say that at the meeting of the Council which I attended on Monday afternoon, and where the proposition was fully discussed, nothing but the kindest feelings were expressed toward the University, and I am quite sure it is the earnest wish of the members of the Academy to aid that institution in every way they consistently can in the good work it is doing for the intellectual fame of Philadelphia.

Very truly yours,

THOMAS MEEHAN,
Senior Vice-President Academy Natural Sciences

Resolved, That the Academy, in accordance with the recommendation of the Council, declines to accept the proposition made by the Provost of the University under date of April 10th, 1889, to move the institution to West Philadelphia.

Resolved, That the presiding officer of the Academy be requested to communicate this action to the Provost of the University.

1811 SPRUCE STREET, PHILADELPHIA.

THOMAS MEEHAN, Esq.,

Senior Vice-President of Academy of Natural Sciences.

DEAR SIR :—I beg to acknowledge the receipt of your communication of May 30th, informing me of the action of the Academy upon the proposition submitted by me in regard to a removal of that institution to a site in West Philadelphia adjacent to the University of Pennsylvania.

The kindly spirit in which this was discussed by the Council of the Academy is highly appreciated. These two great institutions are working for a common purpose, and whether they continue working at some distance from each other, or should approximate and concentrate their material resources, I am confident that their relations will ever remain cordial and harmonious.

I cannot close this brief note of acknowledgment without an expression of my sincere congratulations upon the fact that you will receive, as you so richly deserved, the full appropriation which you asked from the State.

I have the honor to remain, my dear sir,
Yours respectfully and faithfully,

(Signed) WILLIAM PEPPER,
Provost of the University.

May 31st, 1889.

APPENDIX VI.

MUSEUM OF ARCHÆOLOGY AND PALÆONTOLOGY.

Provost,

WILLIAM PEPPER, M.D., LL.D.

Managers,

RICHARD WOOD,
CHARLES C. HARRISON,
HORACE HOWARD FURNESS, LL.D.,
JOHN C. SIMS, JR.,
HENRY H. HOUSTON,
JOSEPH D. POTTS,
SAMUEL DICKSON,
SAMUEL W. PENNYPACKER, LL.D.,
JAMES MACALISTER,
MAXWELL SOMMERVILLE,
FRANCIS C. MACAULEY,
JOSEPH LEIDY, M.D., LL.D.,
HORACE JAYNE, M.D.,
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APPENDIX VII.

ANNUAL REPORT OF THE DEAN OF THE COLLEGE
FACULTY.

TO THE PROVOST OF THE UNIVERSITY, FEBRUARY, 1890:

SIR:—I have the honor to submit herewith my first annual report as Dean of the College Faculty. The tables which are given exhibit the work done during the entire college year of 1888–89, but it has been deemed best to deal mainly with the period from the beginning of the second term of that year—when I entered upon the duties of the office—to the end of the first term of the present year.

The accompanying tables, repared from the reports of the Professors to the Dean, show the courses of instruction offered by the College Faculty, the work actually accomplished in each course, with the hours per week in one or both terms, the grade of the students for whom the courses are prescribed or by whom they are elected, and the attendance upon each subject. It will be observed that the division of the courses, their order under the different heads, and in some cases the titles of the subjects themselves, do not correspond exactly with the nomenclature, division and arrangement adopted in the new catalogue for 1889–90. In explanation of this want of harmony it may be said that the tables were prepared during the summer months, and were in type before the revision of the catalogue was begun.

At the close of the year 1887–88, 136 students left college, 82 by graduation, 18 having completed special courses and 36 to engage in business pursuits or professional study. In the autumn of 1888, 180 new students matriculated, making a total of 406 at the beginning of last year. Of the new students 94 were Freshmen, 34 in Arts and 60 in Science. Of those in Arts 30 entered for the regular course. Of the Freshmen in Science 40 offered for admission French and German, 9 Latin and German and 9 Latin and French. Two partial students presented French only. The following tables show the changes which took place in the composition of the classes between September, 1887, and September, 1888, and during the college year of 1888–89.

TABLE

SHOWING THE COMPOSITION OF THE CLASSES DURING THE YEAR 1887-88, AND THE NUMBER OF STUDENTS ON THE ROLLS AT THE BEGINNING OF THE YEAR 1888-89.

CLASS OF	1887				1888				1889				1890				1891				1892				
	1887		1888		1888		1889		1889		1890		1890		1891		1891		1892		1892				
	1887	1887	GAIN	LOSS	1888	1887	LOSS	GAIN	1888	1887	LOSS	GAIN	1888	1887	LOSS	GAIN	1888	1887	LOSS	GAIN	1888	1887	LOSS	GAIN	1888
Arts, . . . . .	..	21	24	..	..	23	4	4	23	28	3	..	25	25	1	3	27	..	..	..	34	34	..	..	34
Science,	37	27	11	2	18	32	4	1	29	31	8	24	47	44	5	7	46	..	..	..	60	60	..	..	60
Finance, . . . . .	..	10	10	..	..	28	8	..	20	..	..	12	12	..	..	..	..	..	..	..	..	..	..	..	..
Philosophy, . . . . .	..	2	2	..	..	3	..	..	3	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..
Biology, . . . . .	..	8	8	..	..	19	6	3	16	..	..	19	19	..	..	..	..	..	..	..	..	..	..	..	..
Music, . . . . .	..	6	6	..	..	4	..	..	4	4	..	1	5	..	..	15	15	..	..	..	..	..	..	..	..
	37	74	58	2	18	109	22	8	95	63	11	58	110	69	6	25	88				94	94			94

At the beginning of the present year there were 430 students on the rolls, the largest number in the history of the College. The following table gives the number of instructors and students for the last twenty years.

YEAR	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80
Instructors,	13	17	28	28	31	32	34	34	33	36
Students,	187	157	196	215	215	240	236	264	279	286

YEAR	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
Instructors,	30	24	56	31	38	39	42	47	48	56
Students,	296	335	356	416	381	388	375	352	406	430

The sudden increase in the size of the classes seen in 1883-84 was due to the establishment in the College of the fifty free city scholarships. In 1887 these scholarships were distributed among the different departments of the University, and as most of the students originally admitted to these privileges had graduated, the attendance fell in that year to about the number for 1882-83. Of the 430 students now in College, 255 were continued from last year and 175 are new matriculates. The loss (151) was by Post-Seniors 18, Seniors 81, Juniors 20, Sophomores 19, and Freshmen 13. The additions were Fellows 1, Seniors 4, Juniors 47, Sophomores 13, and Freshmen 110. The table on the preceding page shows the loss and gain for each class, including the changes of class and course. The Freshman class comprises 113 students, 48 of whom are in the Arts, 60 in the Sciences, and 5 in the course in Natural History. Of those in Arts 4 are partial students, and of the remaining 44 in full standing 2 were derived from the preceding Freshman class. The Science Freshmen include 47 regular and 13 partial students. As two of three languages are required for

admission to the Science course, 40 of the regular students offered German and French, 8 Latin and German, and 8 Latin and French. Two of the 5 Freshmen in Natural History presented the requirements for the course in Arts and 2 those for Science. The fifth was admitted on a School certificate, having been one year in the special course in Biology.

The distribution of the students now in College in the various courses and classes is exhibited in the following table.

COURSES OF INSTRUCTION. 1888-89.

INSTRUCTOR.	SUBJECT OF COURSE.	HOURS PER WEEK. TERM		COMPOSITION OF CLASSES.	TOTAL NO. OF STUDENTS.
		1	2		
Professor Easton	LINGUISTICS. 1. Whitney's Language and the Study of Language. Lectures on Phonetics and the Principles of Comparison	1	1	Arts Sen. 6.	6
Mr. Montgomery	HEBREW. 1. Harper's Elements and Method and Manual. Selections from Genesis and Judges. English into Hebrew	2	2	Arts Jun. 4.	6
Mr. Montgomery	2. Selections from Pentateuch, Psalms and Prophets. Syntax on Mitchell's Gesenius' Hebrew Grammar. Reading at sight . . .	2	2	Arts Sen. 2.	
Prof. Easton	SANSKRIT. 1. Sanskrit Grammar and Lanman's Reader	2	2	Arts Sen. 1.	1
Prof. Easton	2. Advanced Course. Lanman's Reader. Selected Hymns from the Veda	2	2	Omitted in 1888-89.	
Prof. Lamberton	GREEK. 1. Lysias' Orations against Erastosthenes and against Agoratus. Essays on the life of Lysias, the Thirty Tyrants, and the Courts at Athens. The preparation of written translations on set passages from the orations. The Oeconomicus of Xenophon. Greek Syntax and Greek Composition	4	4	Arts Fresh. 27-28.	27

Prof. Lamberton	2. The greater part of the Sixth Book of Herodotus. Lectures on Greek Tragedy, its origin, connection with religion, development and decay. Description of the Greek Theatre and an account of dramatic representation. Portions of the Antigone of Sophocles. Greek Composition	3	3	Arts Soph. 20-21.	21
Prof. Lamberton	3. Lectures on the Greek Tragedy, its development and representation, with a characteristic of the Greek Tragedians. The Bacchæ of Euripides. The Agamemnon of Æschylus	3	3	Arts Jun. 14-12.	14
Prof. Lamberton	4. Lectures on Socrates and his significance in the history of Philosophy and of Science. The Phædo of Plato	2			
	Lectures on Greek Comedy and its representation. The Clouds of Aristophanes. Lectures on the principles of Greek Rhythmic and Metric		2	Arts Sen. 9-8.	9
Prof. Lamberton	5. Lectures on Demosthenes and his times. Study of Demosthenes on the Crown	1	1		2
Prof. Lamberton	6. Greek Seminary. Five lectures on Demosthenes and his works, with the transmission of these works to modern times. Study of portions of the first Philippic of Demosthenes	1	1	Arts Sen. 4. every other week.	4
Prof. Lamberton	7. New Testament, Greek. Seventeen chapters of the Acts of the Apostles.	1	1		21
Prof. Lamberton	8. Three Public Lectures on Herodotus, Thucydides and Demosthenes.				

COURSES OF INSTRUCTION.—CONTINUED.

LATIN.					
Professor Jackson	1. Selections from Livy and from Horace's Satires. Written historical examination. Oral examination on the text	5	5	Arts Fresh. 3l.	31
Mr. Cheyney	2. Sallust (Catiline). Selections from Ovid	3	3	Sc. Fresh. 18.	18
Professor Jackson	3. Portions of the Annals of Tacitus. De Senectute of Cicero. Written historical examination. Oral examination on the text	4	4	Arts Soph. 25.	25
Mr. Cheyney	4. Tacitus (Agricola). Selections from Horace	3	3	Sc. Soph. 4.	4
Prof. Jackson	5. Selections from Juvenal. The De Amicitia of Cicero. The Odes of Horace. Reading at sight. (Examinations oral)	3	3	Arts Jun. 2l.	21
Prof. Jackson	6. Selections from Juvenal. The Ars Poetica of Horace. Cicero's De Amicitia and Pro Cluentio. Written examinations upon the subject matter of the Pro Cluentio; oral upon the other works	3	3	Arts Sen. 12.	12
GOTHIC.					
Prof. McElroy	1. Stamm and Heyne's Ulfilas	2	2	Arts Jun. 1.	1
Prof. McElroy	2. Advanced Course on Stamm and Heyne's Ulfilas	2	2	Arts Sen. 2.	2
ANGLO-SAXON.					
Prof. Seidensticker	1. Sweet's Reader. Selections	2	2	Arts Sen. 1. Arts Jun. 1.	2
Prof. Seidensticker	2. Bëowulf (entire)	2	2	Omitted in 1888-89.	

ENGLISH LANGUAGE.

Prof. McElroy	1. Rhetoric. McElroy's Structure of English Prose (completed). Prescribed for all Freshmen	I. 2. II. 2. III. 2.	I. 2. II. 2. III. 2.	98
Prof. McElroy	2. English Composition. Prescribed for Sophomores. Four Themes written and read by each student	2	Soph. 69. In small sections.	69
Prof. McElroy	3. English Composition. Prescribed for Juniors. Four Themes written and read by each student	2	Jun. 54. In small sections.	54
Prof. McElroy	4. English Composition. Prescribed for Seniors. Four Themes written and read by each student	2	Sen. 44. In small sections.	44
Prof. McElroy	5. English Language. Chaucer. Prologue and Nonne Prestes Tale. Spencer's Faery Queene, Bk. I. Shakespeare's Richard II. and Twelfth Night	2	Arts Sen. 17. Arts Jun. 5.	22
Asst. Prof. Schelling	1. Lectures on Modern Essayists Lectures on Modern Novelists. Gummere's Poetics Themes, written in Instructor's presence, on subjects set from works of authors lectured upon	I. 2. II. 2. III. 2.	Sc. Soph. 44. Arts Soph. 28. In three sections. I. 2. II. 2. III. 2.	72
Asst. Prof. Schelling	2. Lectures on the Period of French Influence. (Dryden to Cowper)	2	Arts Jun. 25.	25
Asst. Prof. Schelling	3. Seminary. Discussion and criticism of papers prepared on subjects selected from authors treated in lectures	1	Arts Jun. 25. In three sections, each section every third week.	25

COURSES OF INSTRUCTION.—CONTINUED.

Asst. Prof. Schelling	4. Lectures on the Period of French Influence	2			{ Sc. Jun. 30. Phil. Jun. 2. }	{ 32 }
Asst. Prof. Schelling	Lectures on the greatest English Poets			2		
	5. Lectures on the Elizabethan Period. From Sir Thomas More to James Shirley	2		2	Arts Sen. 21. Phil. Sen. 3.	24
	Lectures on English Versification					
Asst. Prof. Schelling	6. Seminary. Discussion and criticism of papers prepared on subjects selected from authors treated in lectures	I. 2. II. 1		I. 1 II. 2	Arts Sen. 21. Phil. Sen. 3. In two sections, once in three weeks.	24
Mr. Rennert	GERMAN. 1. Review of Grammar. Fünftes Lesebuch	I. 4 II. 4		I. 4 II. 4	{ Sc. Fresh. 49. Sc. Soph. 1. }	{ 50 }
Prof. Seidensticker	2. Bayer's Kreislauf des Kohlenstoffs and Virchow's Nahrungs- und Genussmittel. Chamisso's Peter Schlemihl	I. 2 II. 2		I. 2 II. 2	Sc. Soph. 39.	39
Prof. Seidensticker	3. Whitney's Elementary Grammar. Grimm's Märchen	I. 2 II. 2		I. 2 II. 2	Arts Soph. 6.	6
Prof. Seidensticker	4. Eichendorff's Aus dem Leben eines Taugenichts. Schiller's Maria Stuart. Goethe's Egmont. Whitney's Grammar and Exercises	3		3	Arts Jun. 6.	6
Prof. Seidensticker	5. Pinner's Gesetze der Naturerscheinungen	2		2	Sc. Jun. 14.	14
Prof. Seidensticker	6. Lessing's Nathan der Weise. Goethe's Prose	3		3	Arts Sen. 7.	7

FRENCH.					
Prof. Easton and Mr. Rennert	1. French Readings. La poudre aux yeux. La bataille de dames. Super's French Reader. Fleury's Histoire de France. Trans- lations into French (daily)	I. 4 II. 4	I. 4 II. 4	{ Sc. Fresh. 51. Biol. Jun. 1. }	52
	2. French Readings. Knapp's French Readings. Le romantisme français. Colloquial practice. Quélin's dialogues. Translation into French (one hour weekly)	I. 1 II. 1 I., II. 2	I. 1 II. 1 I., II. 2	{ Sc. Soph. 36. }	36
Prof. Easton	3. French Reading. Tableaux de la révolution française (entire). Le roman d'un jeune homme pauvre (98 pp.). Translation into French (once weekly)	2	2	Sc. Jun. 7.	7
Prof. Easton	4. De Fivas' Reader (in part). Super's Reader (entire). Translation into French	3	3	Arts Jun. 13.	13
Prof. Easton	5. French Readings. Translation into French once weekly	2	2	Arts Sen. 4.	4
OLD FRENCH.					
Prof. Easton	1. Extracts from Clédat's Chrestomathy	2	2	Arts and Sc. Sen. 6. (Five of these voluntary.)	6
ITALIAN.					
Mr. Rennert	1. Toscani's Grammar. Fellico's Le mie prigioni	2	2	Arts Sen. 3.	3
Mr. Rennert	2. Dante. Selections from the Inferno. Boccaccio (selections.) Lect- ures on Italian Literature	2	2	Omitted in 1888-89.	

COURSES OF INSTRUCTION.—CONTINUED.

PHILOSOPHY.					
Prof. Fullerton	1. Logic. Jevon's Lessons in Logic. Exercises and Discussions. . .	2		Arts Jun. 25. Phil. Jun. 2.	27
Prof. Fullerton	2. Logic. (Science and Wharton School Course.)	2		Sc. Jun. 19. Wh. Sch. Jun. 15.	34
Prof. Fullerton	3. Locke, Berkeley and Hume. Berkeley's "Principles."	3		Arts Sen. 19. Phil. Sen. 3.	22
Prof. Fullerton	4. Ethics. Janet's Elements. Lectures		2	Sc. Jun. 19. Wh. Sch. Jun. 15.	34
Prof. Fullerton	5. Ethics (advanced course)		3	Arts Sen. 19. Phil. Sen. 2.	21
Prof. Fullerton	6. Seminary for the study of Philosophy	1	1	Arts Sen. Wh. Sch. Sen. Sc. Sen.	22
PSYCHOLOGY.					
Prof. Fullerton	1. Psychology. Murray's Outlines of Hamilton's Philos. Lectures .		2	Arts Jun. 24. Phil. Jun. 1.	25
Prof. Cattell	2. Experimental Psychology with Laboratory Work		2	Arts Jun. 10.	10
Prof. Cattell	3. Experimental Psychology (Advanced Course)		2	Gr. 5. Sc. Jun. 2. Biol. Sen. 2.	9
HISTORY.					
Prof. Thompson	1. Freeman's General Sketch of History.	2	2	Arts Fresh. 33.	33
Mr. Cheyney	2. Myers' Mediæval and Modern History	I. 2 II. 2	I. 2 II. 2	Sc. Fresh. 61. In two sections.	61
Prof. Thompson	3. Freeman's General Sketch of History. Completed Lectures on the Constitution of the United States	2	2	Arts Soph. 26. Wh. Sch. Jun. 1.	27
Mr. Cheyney	4. Political and Constitutional History of Europe since 1789	1	1	Sc. Soph. 42.	42

Mr. Chleyney	5. American History	2	2	Sc. Soph. 15. Sc. Fresh. 1.	16
Mr. Chleyney	6. Economic and Social History of Europe since 1789	2	2	Sc. Jun.: I, 5, III, 9, IV, 10, V, 1.	25
Prof. Thompson	7. Church and State in America. Lectures Economic History of the United States. Lectures	2	2	{ Wh. Sch. Jun. 11. Arts Jun. 16.	27
Prof. McMaster	8. American Politics. Colonial History. History of the Public Domain. Distribution of Population. Preparation of Boundary, Population and Economic Maps	3	3	Wh. Sch. Jun. 11.	11
Prof. Thompson	9. Industrial History of the United States. Composition and Lectures	2	2	Wh. Sch. Sen. 22.	22
Prof. McMaster	10. American Constitutional History: First Period, 1789-1825 Second Period, 1825-1885. Diplomatic History. Biography of American Statesmen	4	3	{ Wh. Sch. Sen. 22.	22
Prof. Thompson	11. Lectures on the Philosophy of History, and on Modern History since 1789	2	2	Arts Sen. 19.	19
POLITICAL ECONOMY AND SOCIAL SCIENCE.					
Prof. Patten	1. Walker's Political Economy and Adam Smith's Wealth of Nations	3	3	Wh. Sch. Jun. 12.	12
Prof. Patten	2. Jevon's Money and Mill's Political Economy	3	3	Wh. Sch. Sen. 19.	19
Prof. Patten	3. Seminary. Original Papers and Discussions	1	1	Wh. Sch. Sen. 16.	16
Prof. Patten	4. Lectures on the Investigation of Economic Methods. Work based on Mill's Logic, especially Book VI. on the Logic of Moral Sciences	2	2	4 Graduate Students.	4
Prof. Thompson	5. Social Science. International Law (Lectures). Thompson's Elements of Political Economy. Prescribed for all Seniors	2	2	Sen. 39; Wh. Sch. Jun. 11. Sen. 37; Wh. Sch. Sen. 20.	50 57
Prof. Thompson	6. Social Science. Composition and Lectures	3		Wh. Sch. Sen. 20.	20

COURSES OF INSTRUCTION.—CONTINUED.

Prof. James	7. Political Science. Theory of the State. Public Functions (Lectures and Text-book)	3	Wh. Sch. Jun. Omitted 1888-89.	
Prof. James	8. Civil Government. Elements of the Constitutional and Administrative Law of the Federal and State Governments (Lectures and Text-book)	3	Wh. Sch. Jun. Omitted 1888-89.	
Mr. Falkner	9. Finance. Principles and Methods of Public Finance. Objects of Public Expenditure. Revenue from Public Property and Fees. Lectures and Recitations on Mill, Book V	2	Wh. Sch. Sen. 19.	19
Prof. James	10. Civil Government. Principles of General, Constitutional and Administrative Law Principles and Comparative Methods of Legislation (Lectures)	2	Wh. Sch. Sen. Omitted 1888-89.	
Prof. James	11. Finance. Principles and Methods of Public Finance (continued). Theory and Practice of Taxation. Financial Administration. Local Finance (Lectures)	2	Wh. Sch. Sen. Omitted 1888-89.	
Prof. James	12. Civil Government. Principles and Comparative Methods of Public Administration—general and local (Lectures)	2	Wh. Sch. Sen. Omitted 1888-89.	
Mr. Thorpe	13. The Development of Constitutional Government in the United States	2	Wh. Sch. Sen. 18.	18
Mr. Falkner	14. Financial History of the United States	2	Wh. Sch. Sen. 19.	19
Mr. Falkner	15. Methods of Accounting	2	Wh. Sch. Jun. 12.	12
Mr. Falkner	16. Mercantile Law. Parson's Laws of Business	2	Wh. Sch. Sen. 19.	19

Mr. Falkner	17. Mercantile Practice (Lectures)		2	Wh. Sch. Sen. Omitted 1888-89.	19
Mr. Falkner	18. Statistics. General Theory. Statistics of Population (Lectures). MATHEMATICS.		2	Wh. Sch. Sen. 19.	
Mr. Wylie	1. Algebra. Wentworth College Algebra. Geometry (Chauvenet's). Trigonometry (Wentworth's)	I. 5 II. 5	I. 5 II. 5	Arts Fresh. 33.	33
Mr. Crawley	2. Algebra. (Wentworth's College Algebra)	I. 2 II. 2	I. 2 II. 2	Sc. and Phil. Fresh. 59.	59
Asst. Prof. Kendall, Jr.	3. Plane and Spherical Trigonometry (Chauvenet). Analytical Geometry begun (Bowser)	I. 3 II. 3	I. 3 II. 3	Sc. and Phil. Fresh. 57.	57
Asst. Prof. Kendall	4. Analytical Geometry (Bowser). Elementary Differential and In- tegral Calculus	4	4	Arts Soph. 19.	19
Mr. Crawley	5. Analytical Geometry. Elementary Differential Calculus	I. 2 II. 2 I. & II. 2	I. 2 II. 2 I. & II. 2	Sc. Soph. 40.	40
Mr. Haupt and Mr. Franklin	6. Descriptive Geometry	1	1	Sc. Soph. 27.	27
Asst. Prof. Kendall	7. Theory of Equations (Todhunter). Advanced Trigonometry and Analytical Geometry. Factorials and Determinants	3	3	Arts Jun. 5.	5
Asst. Prof. Kendall	8. Advanced Differential and Integral Calculus. Differential Equa- tions. Theory of Probabilities	2	2	Arts Sen. 4.	4
Mr. Crawley	9. Differential and Integral Calculus	4	4	Sc. Jun. 31.	31
Asst. Prof. Kendall	10. Methods of Computation (optional with Science Seniors)	1	1	Omitted in 1888-89.	
Prof. Kendall	11. Astronomy (Newcomb's)	I. 2 II. 2	I. 1 II. 1	I. Arts Sen. 18. II. Sc. Sen. 18.	36

COURSES OF INSTRUCTION.—CONTINUED.

PHYSICS.				
Mr. Goodspeed	1. Mechanics. Lodge's Mechanics. Prescribed for all Sophomores .		I. 2 Arts Soph. 17. Sc. Soph. II. 2 45. Sc. Jun. 5.	67
Prof. Barker and Mr. Goodspeed	2. Physics. Sound, Heat, Light and Electricity. Lectures (3) and recitations (1)	I. & II. 3 I. 1 II. 1	I. 1 Arts Jun. 26. Sc. Jun. 32. Phil. Jun. 2.	60
Prof. Barker	3. Mathematical Physics	2	Arts Sen. 1.	1
Prof. Barker	4. Practical Physics. Lectures and Recitations	3	Sc. Sen. 19.	19
Prof. Barker and Mr. Goodspeed	5. Laboratory Course in Physics (optional except for Dynamical Engineers)	4	Sc. Dyn. Eng. Sen. 3.	3
MINERALOGY.				
Prof. Koenig	1. Mineralogy. Crystallography. Native Elements and Sulphides	2	Sc. Chem. Jun. 7. Min. Jun. 4.	10
Prof. Koenig	2. Mineralogy. Oxides, Chlorides and Fluorides, Sulphates, etc. Phosphates, etc. Carbonates and Silicates	2	Sc. Chem. 7; Min. 4; and Arch. 1 Sen.; Sc. Post-Sen. 1.	13
Prof. Koenig	3. Determinative Mineralogy	2	Sc. Eng. Post-Sen. 7. Biol. 2. Sc. Min. Post-Sen. 1. Sc. Chem. Post-Sen. 5.	15
Prof. Koenig	1. Geology. Lithology. Paleontology of Protozoa. Anthozoa and Echinodermata	1	Sc. Min. Jun. 4. Biol 5. Sp. 2.	4
GEOLOGY.				

Prof. Koenig	2. Geology. Stratigraphy in connection with Palaeontology of the rock systems. Laws of Dynamic Geology	2	2	Sc. Min., Civ. Eng. and Chem. Post-Sen.; and Biol.	15
Prof. Koenig	3. Geology. Palaeontology of Mollusca and Crustacea	1	1	Sc. Min. Sen. 2.	2
Prof. Koenig	4. Geology. Structural Geology of North America, with reference to that of Europe, with the principal minerals and fossils, and distribution of metals and fuels	2	2	Sc. Post-Sen. 1.	1
Prof. Koenig	5. Geology. The topographical and structural relations of the principal ore deposits in America and Mexico	7	7	Sc. Min. Post-Sen. 1.	1
BIOLOGY.					
Prof. Dolley and Mr. Greenman	1. General Biology. Microscopical Technique. A series of Animal and Plant forms studied	8	8	Biol. Jun. 17. Phil. Jun. 2.	19
Prof. Leidy	2. Systematic Zoölogy. Lectures	1	1	Biol. Jun. 17. Feb. 15. Phil. Jun. 2. Sen. 2.	96
Prof. Jayne and Mr. Burk	3. Mammalian Anatomy. Lectures. Practical work on the Anatomy of the Cat	9	9	Vet. I. 22. II. 24. Aux. Med. 13. Biol. Jun. 15.	15
Prof. Jayne and Mr. Burk	4. Zoötony. Dissection of the Pigeon, Terrapin, Lizard, Frog, Perch and Skate. Lectures on the Comparative Anatomy of the Vertebrates	4	4	Biol. Sen. 9.	9
Prof. Ryder	5. Animal Histology. Comparative Study of Animal Tissues and Organs. Lectures and Laboratory work	8	8	Biol. Sen. 14. Phil. Sen. 2.	16
Prof. Ryder	6. Animal Embryology. Lectures and Laboratory work on the development of several types	2	8	Biol. Sen. 14. Phil. Sen. 2.	16
Dr. Hare	7. Animal Physiology. Lectures, Demonstrations and Recitations .	2	2	Biol. Sen. 14. Phil. Sen. 2. Biol. Jun. 1.	17

COURSES OF INSTRUCTION.—CONTINUED.

Prof. Wilson	8. Structural Botany. Lectures	1		{ Biol. Jun. 19. Vet. I. 22.	41
Prof. Wilson	9. Structural Botany. Laboratory Course	4			
Prof. Wilson	10. Plant Histology. Laboratory Course	6		Biol. Sen. 13.	13
Prof. Rothrock	11. Systematic Botany. Lectures on General Outlines of Plant Classification		1	{ Biol. Jun. 19. Vet. I. 22.	41
Prof. Rothrock	12. Systematic Botany. Analytical Laboratory Exercises		4		
Prof. Rothrock	13. Advanced Course in Systematic Botany. a. Analytical Medical Botany. b. Economic Botany. Principles of Classification of the Flowerless Plants		5	Biol. Sen. 13. Biol. Spec. 2.	15
Prof. Rothrock	14. Special Course in Systematic Botany	5		Biol. Specials 3.	3
Miss Gregory	15. Plant Anatomy. Laboratory Course	10	10	Biol. Specials 5.	5
CHEMISTRY.					
Prof. Smith	1. General Inorganic Chemistry. Study of Metals and Non-Metals completed. Demonstrations. Monthly written examinations	2	2	Arts Soph. 23. Biol. Jun. 13.	36
Prof. Smith	2. General Inorganic Chemistry. Second and more extended Course	3	3	Sc. Soph. 43. Sc. Chem. Jun. 12.	55
Prof. Smith and Mr. Frankel	3. Analytical Chemistry. Laboratory practice in Qualitative Analysis. Elementary Quantitative Analysis	II. 12 III. 6 III. 8 VI. 5	II. 12 II. 6 III. 8 VI. 5	I. Sc. Chem. Jun. 14. II. Sc. Min. Jun. 3. III. Sc. Civ. Eng. Jun. 11. IV. Biol. Sen. 8. Phil. Jun. 2. Arts Jun. 1. Sc. Soph. 1.	40
Recitations, one each week for each of the four sections.					

Prof. Smith and Mr. Frankel	4. Analytical Chemistry. Laboratory practice in Gravimetric and Volumetric Analysis	I. 5 II. 7-9	I. 5 II. 7-9	I. Sc. Chem. Sen. 10. II. Sc. Min. Sen. 3. Sc. Phil., 2. Post-Sen., Chem. 3.	18
Prof. Spangler	5. Mechanical Drawing, with special reference to Chemical applications	2	2	Sc. Chem. Sen. 6.	6
Prof. Smith	6. Seminary of Analytical Chemistry. Reports on Current Chemical Literature. Every other week	1	1	Sc. Chem., Sen. 10. Sc. Chem., Post-Sen. 3.	13
Prof. Sadtler First term Dr. Keller Second term	7. Lectures on Organic Chemistry, with reviews	2	2	Sc. Chem. Jun. 14. Biol. Sen. 4. Phil. Sen. 2.	20
Prof. Sadtler and Dr. Keller	8. Laboratory Course in Organic Chemistry. Synthetic preparations. The processes of manufacture and purification of a large number of organic compounds, and the methods of the analysis of the same	6	6	Sc. Chem. Sen. 7. Phil. Sen. 3. Specials 5.	15
Prof. Sadtler	9. Lectures on Applied Inorganic Chemistry, with reviews. This course covers all of Inorganic Chemistry except the extraction of the heavy metals (metallurgy). Excursions to Industrial works	2	2	Sc. Chem. Sen. 8. Sc. Chem. Post-Sen. 3. Specials 4.	15
Prof. Sadtler	10. Lectures on Applied Organic Chemistry, with reviews. Excursions to Industrial works. Mineral oil and paraffine, vegetable and animal fats and oils and products therefrom. Essential oils, resins, varnishes, paints, etc. Manufacture of medicinal chemicals. Sugar Industries. Glucose and Starch Industries. Fermentation Industries. Milk Industries and products	2	2	Sc. Chem. Sen. 8. Sc. Chem. Post-Sen. 4.	12
Prof. Sadtler	11. Seminary of Organic and Applied Chemistry. Every other week	1	1	Sc. Chem. Sen. 8. Sc. Chem. Post-Sen. 3.	11

COURSES OF INSTRUCTION.—CONTINUED.

MINING.				
Prof. Koenig	1. Construction of parts of Mines, and of Mining Machinery, from notes and sketches	5	5	Sc. Min. Jun. 4. 4
Mr. Pugh	2. Mining Engineering. Lectures on the methods used in prospecting for and in developing ore and coal deposits	3	3	Sc. Min. Sen. 2. 2
Prof. Koenig	3. Mining Engineering. Lectures on the ventilation and drainage of Mines. Special Mining problems in faulted strata, more especially in coal mining. Excursion for two weeks to the Anthracite Coal Region, to make underground survey and to learn how to examine a mine and report its condition	2	2	Sc. Min. Post-Sen. 1. 1
METALLURGY.				
Prof. Koenig	1. Theory of Metallurgical processes. Theory of Dressing and Mechanical Treatment of Ores	1	1	Sc. Sen. 23. 23
Prof. Koenig	2. Theory of Metallurgical processes. Theory and construction of furnaces. Dressing of Ores considered theoretically and practically. Demonstrations of the principal metallurgical processes by furnace practice	2	2	Sc. Chem. Sen. 8. 8 Sc. Min. Sen. 2.
Prof. Koenig and Mr. Pugh	3. Assaying	4	4	Sc. Min. Sen. 3. Sc. Chem. Sen. 7. Sc. Post-Sen. 1. 11

Prof. Koenig	4. Lectures on the production of pig, weld and temper iron and of silver, copper and lead. Experimental testing of metallurgical processes. Electricity applied to Metallurgy. Visits to Metallurgical works in the City and State	4	4	Sc. Min. and Chem. Post-Sen. 4.	4
CIVIL ENGINEERING.					
Mr. Haupt	1. Engineering. Railroad Location. Spherical Projections. Shades, Shadows and Perspective	2	2	Sc. Civ. Eng. Jun. 15.	15
Prof. Haupt and Mr. Franklin	2. Statics. Roof and Bridge Trusses, and Merriman's Mechanics of Materials	4	4	Sc. Civ. Eng. Jun. 15.	15
Prof. Haupt	3. Surveying. Field Practices, including Chain Surveying. Use of Compass, Transit and Plane Table on measuring lines and areas. Traversing. Location of Roads. Drains, etc., on Topographical Charts. Recitations from Gillespie's Land and Higher Surveying and Earthwork Formulas. Hydrographical, Mine and Government Surveying	4	4	Sc. Civ. Eng. Jun. 15. Sc. Soph.	15
Prof. Haupt and Mr. Haupt	4. Topographical Charts in ink and colors. Details of frames, joints, etc.	2	2	Sc. Min. Jun. 4. Sc. Civ. Eng. Jun. 15.	19
Prof. Haupt	5. Geodesy. Measurement of Bases, Triangulations. Determination of Meridian, Latitude, Longitude, Time and Azimuth	1	1	Sc. Civ. Eng. Sen. 19.	19
Mr. Franklin	6. Surveying. A complete course in practical Topography, including special instruments and field sketching. Field practice. Reconnaissance. Use of Prismatic Compass, Level, Solar Transit, Repeating Theodolites and Heliotropea. Sketching	3	3	Sc. Civ. Eng. Sen. 9.	9

COURSES OF INSTRUCTION.—CONTINUED.

Prof. Haupt and Assistants	7. Engineering. Mechanics of Engineering, embracing the Statics of Rigid Bodies					
	Determination of the Centres of Gravity. Movements of Flexure, Rupture, Resistance, Torsion, Strength and Properties of Materials, etc. Nomenclature of and construction in Masonry, Timber, Iron and Steel as applied to Lighthouses, Bridges and Roofs, Depots and other Engineering structures. Equilibrium of Arches and Retaining Walls. Tunneling and Earthworks, with the required plant and organization. Sea-coast and Harbor Improvements. Canal and River Improvements, Transportation, etc.	7 2	7 2	Sc. Civ. Eng. Sen. 9. Sc. Arch. Sen. 1.	9 1	
Prof. Haupt and Mr. Haupt	8. Shades, Shadows and Perspective. Platting field notes. Engineering Construction and Stereotomy	2	2	Sc. Civ. Eng. Sen. 9.	9	
Prof. Haupt	9. Practical Engineering. Observation tours for the collection of data and critical reports on works in process of construction. Estimates of cost, prices of labor and materials. Construction and arrangement. Preparation of Contracts and Specifications. Thesis for Graduation. Sanitary Engineering	9	9	Sc. Civ. Eng. Post-Sen. 8.	8	
Mr. Haupt	10. Laws of Business and of Contracts	1	1	Sc. Civ. Eng. Post-Sen. 8.	8	
Prof. Haupt	11. Hydromechanics. Lectures and recitations	1	1	Sc. Civ. Eng. Post-Sen. 8.	8	

Prof. Haupt	12. Modeling. Construction of Trusses for bridges, roofs, girders, etc. Problems in stone cutting. Tunnels	2	2	Sc. Civ. Eng. Post-Sen. 8.	8
Prof. Haupt	13. Details of Engineering works. Composition. Plans. Sections. Elevations. Profiles and Cross-sections. Working drawings from data collected in the field	6	6	Sc. Civ. Eng. Post-Sen. 8.	8
Mr. Earle	COURSES IN DYNAMICAL ENGINEERING.				
	1. Statics. The application of the principles of Statics to Rigid Bodies. The elasticity and strength of Materials. Forms of uniform strength. Theory of Framed structures. Stability of structures. Theory of the Arch. Strains in parts of mechanism	2		Sc. Dyn. Eng. Jun. 12.	12
Prof. Spangler	2. Hydrostatics. The equilibrium and pressure of fluids, as water, air, steam, etc. The equilibrium of fluids with other bodies; stability of vessels; determinations of specific gravity; use of hydrometers, manometers, gauges, etc.		2	Sc. Dyn. Eng. Jun. 12.	12
Mr. Franklin	3. Graphical Statics. General theory and application of roof and bridge trusses	2	2	Sc. Dyn. Eng. Jun. 12. Sc. Civ. Eng. Jun. 14. Sc. Arch. Jun. 2. Sc. Soph. I.	29
Prof. Spangler	4. Kinematics. General mathematical theory of slide-valve and link motions, and its practical application in designing mechanism of valve motions for automatic and marine engines	2	2	Sc. Dyn. Eng. Jun. 12.	9
Prof. Spangler	5. Shop Work. Manual training in pattern and machine work (Spring Garden Institute)	7½	7½	Sc. Dyn. Eng. Jun. 12.	12

COURSES OF INSTRUCTION.—CONTINUED.

Prof. Spangler	6. Elementary Mechanical Drawing. Use of Instruments. Copying working drawings, tracing and blue printing. Making working sketches and drawings of pieces of machinery from the models	2	2	Sc. Dyn. Eng. Jun. 12.	12
Prof. Spangler	7. Kinematics. Laws of Motion. Elementary combinations of pure mechanism. Pulleys and belts. Trains of gearing and forms of the teeth of wheels. Link work	2	2	Sc. Dyn. Eng. Sen. 4.	4
Prof. Spangler	8. Steam Engine. Determination of proper proportions for cylinders, valves, pistons, rods, shafts, fly-wheels, etc., and making rough sketches and working drawings from original designs	2	2	Sc. Dyn. Eng. Sen. 4.	4
Mr. Earle and Prof. Spangler	9. Steam Boilers. Value of fuels. Determinations of the proper proportion of grate and heating surface, area and height of chimneys, thickness of shell, size of braces, etc., for various forms of boilers, and making rough sketches and working drawings from original designs	2	2	Sc. Dyn. Eng. Sen. 4.	4
Prof. Spangler	10. Shop Work. Making patterns from working drawings and finishing castings, and making, fitting and finishing parts of machinery (Spring Garden Institute)	7½	7½	Sc. Dyn. Eng. Sen. 4.	4
	Hand and machine tools and their principles	2	2	Sc. Dyn. Eng. Sen. 4.	4
Mr. Earle	11. Hydrodynamics. Flow of water. Water meters. Turbine, over-shot, undershot and breast wheels	2	2	Sc. Dyn. Eng. Sen. 4.	4

Mr. Peterson	12. Electricity. The measurement and discussion of electrical quantities, and their application to the construction and use of galvanometers, batteries, accumulators, etc.	1	1	Sc. Dyn. Eng. Sen. 4—3.	4
Mr. Earle	13. Engineering Appliances. Lectures on steam engine indicators, injectors, gauges, safety valves, oil cups, pumps, speed indicators, dynamometers, testing machines, etc.	1	1	Sc. Dyn. Eng. Sen. 4—3.	4
Mr. Earle	14. Principles of Mechanism. Lectures, with special reference to their applications in Chemistry	1	1	Sc. Chem. Post-Sen. Omitted in 1888-89.	
Prof. Spangler	15. Hydrodynamics. Continuation of work of Senior Year Laboratory work	2	3	Sc. Dyn. Eng. Post-Sen. 4. Sc. Dyn. Eng. Post-Sen. 4.	4 4
Prof. Spangler	16. Thermodynamics. Mechanical theory of heat. Application to steam, air and gas engines, and refrigerating machines Laboratory work. Testing boilers, engines, gauges and indicators, determining duty of pumps and injectors. Calorimetric work . .	3	3		4
Mr. Peterson	17. Electrodynamics. Measurement of electrical quantities and their application to the theory, construction and use of dynamos, motors, galvanometers, batteries, etc. Laboratory work. Wiring, the operation and testing of dynamo and storage batteries, photometry, calorimetry, measurement of currents, insulation, etc.	5	5	Sc. Dyn. Eng. Post-Sen. 4. Sc. Dyn. Eng. Post-Sen. 4.	4 4
Prof. Spangler	18. Marine Engineering and Naval Architecture. Descriptive lectures on Marine Engines	1	1	Sc. Dyn. Eng. Post-Sen.	4

COURSES OF INSTRUCTION.—CONTINUED.

Prof. Spangler	19. Designing. Continuation of Designing from Senior Year, after shop visits were finished (18 weeks)	4	4	Sc. Dyn. Eng. Post-Sen. 4.	4
	20. Visits to Manufacturing Establishments. Machine shops, foundries, iron and steel rolling mills, ship yards, electric light plants, etc. Illustrated reports made on general arrangement of plant, arrangement of power, tools, etc. Description of particular machines and process. 16 weeks. One visit per week			Sc. Dyn. Eng. Post-Sen. 4.	4
Mr. Earle	21. Contracts and Specifications. Methods of drawing specifications for engines, boilers, foundations, etc. Making estimates of cost, weight, etc. Experimental work in Laboratory on Thesea.	1		Sc. Dyn. Eng. Post-Sen. 4.	4
	DRAWING.				
Prof. Richards	1. Geometric and Isometric Drawing (Minifie) and Drawing from the flat. Freehand Sketching. Use of scale and protractor. Shading in India Ink. Graphical representations from Geometry	3	3	Sc. Fresh. 60. Biol. Jun. 10.	70
Prof. Richards	2. Linear Perspective. Geometric and Isometric Drawing. Projection of Shadows. Architectural Detail and Ornament. Gothic Tracery. Shading in India Ink. Freehand Drawing	3	3	Sc. Soph. 25.	25

ARCHITECTURE.

Prof. Richards	1. Classical Architecture and Medieval Ornament. Shading in India Ink. Sketching	9	9	Sc. Arch. Jun. 3.	3
Prof. Richards	2. Architecture. Ornament. History of Architecture. Decoration and Shading	4	4	Sc. Civ. Eng. Sen. 9.	9
Prof. Richards	3. Study of executed works and of buildings in progress. History of Architecture illustrated by views of structures of all ages. Ornaments. Shading in India Ink. Sketching	14	14	Sc. Arch. Sen. 1.	1
Prof. Richards	4. Architecture. Shading and Decoration. History of Architecture (continued)	4	4	Sc. Civ. Eng., Post-Sen. 8.	8
Prof. Richards	5. Elements of design and principles of composition. Ornament of all styles. Sketching and measurement of works executed and in progress. Building materials and processes. Specifications. Contracts. History of Architecture (concluded)			Sc. Arch. Post-Sen. Omitted in 1888-89.	
Prof. Richards	6. Plans. Elevation and original designs. Exercises, with perspective views. Water color. Sketching	9	9	Sc. Arch. Post-Sen. Omitted in 1888-89.	
MUSIC.					
Prof. Clarke	1. Harmony. Formation of Scales. Formation and Succession of Chords. The use of Dissonants and Modulation	2	2	Mus. I.	15
Prof. Clarke	2. Counterpoint. Simple and Double Counterpoint. Canon and Fugue.	2	2	Mus. II.	6
Prof. Clarke	3. Form and Orchestration. The Development of the Sonata and Rondo forms from the Lyrics. The range, quality, and the construction of Instruments in the Orchestra	2	2	Mus. III.	4

The total number of courses offered was one hundred and eighty-four; of these thirty-four were half-year courses. By estimating two half-year courses as equal to one whole year course the number is reduced to one hundred and sixty-eight. The hours of instruction per week varied from one to fourteen. Twenty-two courses required the equivalent of one hour throughout the year; seventy-seven, two hours; twenty-four, three hours; eighteen, four hours; and twenty-seven from five to fourteen hours. The average number of hours of attendance required in these courses was about two and four-fifths per week. Twelve courses were omitted during the year. One each in Sanskrit, Gothic, Italian, and two in Architecture, as they were not elected by students, and one in Dynamical Engineering from lack of time. Six of the regular courses in the Wharton School were not given, but others were substituted in their stead.

The following tables show the courses taken by the regular and partial students in the Freshman and Sophomore class in Arts. The number of hours required of each student and the attendance upon each course are also given.

FRESHMEN IN ARTS.

COURSES.	HOURS PER WEEK.	REGULAR STUDENTS.	PARTIAL STUDENTS.		TOTAL IN EACH COURSE.
Rhetoric	(2)	30	3	1	34
Greek	(4)	30	—	—	30
Latin	(5)	30	3	—	33
History	(2)	30	3	1	34
Mathematics	(5)	30	3	—	33
Hours per week . . .	18	18	14	4	

SOPHOMORES IN ARTS.

COURSES.	HOURS PER WEEK.	REGULAR STUDENTS.	PARTIAL STUDENTS.							TOTAL IN EACH COURSE.
Rhetoric	Compositions	18	2	1	1	—	1	1	1	25
English Literature	2	18	2	1	1	1	1	1	1	26
Greek	3	18	—	—	1	1	—	—	1	21
Latin	4	18	2	1	—	—	—	1	1	23
History	2	18	2	1	1	1	1	1	1	26
Mathematics . . .	4	18	—	—	—	—	1	—	—	19
Mechanics	1	18	—	—	—	—	1	—	—	29
Chemistry	2	18	—	1	1	—	1	1	—	22
Drawing	3	—	—	1	—	—	—	—	—	1
Hours per week . .	18	18	8	13	9	7	11	10	11	

As part of the work done by the Juniors and Seniors in Arts is elective, the number of groups or combinations of studies is considerable.

These are given below with the number of students in each group, the character and number of the courses chosen, and the hours required per week. The attendance upon each study and the average number of courses and hours are also shown. The numerals in parentheses placed after the subjects indicate the hours of instruction per week.

JUNIORS IN ARTS.

NO. OF COMBINATIONS.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
REQUIRED.	Rhetoric (composition)	1	1	1	1	1	1	3	2	3	1	1	1	1	3	1	1	2	25
	English Literature (2)	1	1	1	1	1	1	3	2	3	1	1	1	1	3	1	1	2	25
	Logic, Psychology (2)	1	1	1	1	1	1	3	2	3	1	1	1	1	3	1	1	2	25
	Physics (4)	1	1	1	1	1	1	3	2	3	1	1	1	1	3	1	1	2	25
	Hebrew (2)									3			1						4
	Greek (3)	1	1					3	2	3	1						1		12
	Latin (3)	1	1	1	1	1		3	2	3	1	1	1	1	3	1			21
	English Language (2)	1	1	1	1	1	1												6
	German (3)						1					1	1				1	2	6
	Gothic (2)											1							1
	French (3)			1	1	1	1				1			1	3	1		2	12
	Industrial History (2)	1		1				3		3	1	1		1	3			2	16
	Mathematics (3)				1				2							1	1		5
	Chemistry (6)													1					1
	Botany (1)					1													1
Number of Courses		8	7	8	7	9	7	7	7	8	8	8	7	8	7	7	7	7	7 $\frac{5}{12}$
Hours per week		20	16	18	16	20	16	16	17	18	19	18	16	22	16	17	17	16	17 $\frac{1}{2}$

SENIORS IN ARTS.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	TOTAL	
REQUIRED.	Rhetoric (composition)	1	3	2	1	1	1	1	1	1	1	1	1	1	4	1	20
	English Literature (2)	1	3	2	1	1	1	1	1	1	1	1	1	1	4	1	20
	Philosophy (3)	1	3	2	1	1	1	1	1	1	1	1	1	1	4	1	20
	Social Science (1½)	1	3	2	1	1	1	—	1	1	1	1	1	1	4	1	19
	History (2)	1	3	2	1	1	1	—	1	1	1	1	1	1	4	1	19
	Astronomy (1½)	1	3	2	1	1	1	—	1	1	1	1	1	1	4	1	19
	Hebrew (2)	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	2
	Sanskrit (2)	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
	Greek (2)	1	3	—	—	—	1	—	—	—	—	—	—	—	4	—	9
	Latin (3)	1	3	2	1	1	—	—	—	—	—	—	—	—	4	—	12
ELECTIVE.	English Language (2)	1	3	2	1	1	1	1	1	1	1	1	1	—	—	—	15
	Anglo-Saxon (2)	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	2
	Gothic (2)	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
	German (3)	—	—	—	2	—	—	—	1	1	1	1	—	—	1	—	7
	French (2)	—	—	—	—	1	—	—	—	1	—	—	1	—	1	—	4
	Old French (2)	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
	Italian (2)	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	3
	Linguistics (1)	1	—	—	—	—	—	—	1	—	—	1	—	—	4	—	6
	Mathematics (2)	—	—	—	—	—	—	—	—	—	—	—	—	4	—	—	4
	Physics (2)	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Number of Courses		10	9	9	9	9	9	5	13	9	9	9	9	10	9	9½	
Number of Hours		18	17	18	17	17	16	9	24	17	17	17	16	18	17	17½	

Freshmen in Science are required to elect French and German, Latin and German, or Latin and French. The first three combinations in the following table therefore are those made by regular students. Combinations 4 and 5 show the courses pursued by the three partial students in the class.

FRESHMEN IN SCIENCE.

SUBJECTS.	COMBINATIONS.					NUMBER IN EACH COURSE.
	1	2	3	4	5	
Rhetoric (2)	39	9	9	1	2	60
Latin (3)	—	9	9	—	—	18
German (4)	39	9	—	1	—	49
French (4)	39	—	9	1	2	51
History (2)	39	9	9	1	2	60
History (Soph.) (2)	—	—	—	1	—	1
English Literature (2)	—	—	—	1	—	1
Mathematics (5)	39	9	9	—	2	59
Drawing (3)	39	9	9	—	2	59
Number of Courses	6	6	6	6	5	5½
Hours per week	20	19	19	16	16	19½

Regular Sophomores in Science are divided into six groups according as they take (1) French, German and Drawing; (2) French, German and American History; (3) Latin, German and Drawing; (4) Latin, German and American History; (5) Latin, French and Drawing; (6) Latin, French and American History. There were no students in group 5 last year. The remaining seven combinations shown below are those of partial students.

SOPHOMORES IN SCIENCE.

SUBJECTS.	COMBINATIONS.												NUMBER IN COURSE.
	1	2	3	4	5	6	7	8	9	10	11	12	
Rhetoric (compositions)	22	12	1	1	2	—	—	1	—	—	1	—	40
English Literature (2)	22	2	1	1	2	—	—	1	—	—	1	—	40
Latin (3)	—	—	1	1	2	—	—	—	—	—	—	—	4
German (4)	22	12	1	—	2	2	—	—	1	—	—	—	40
German (Fresh.) (4)	—	—	—	—	—	—	1	—	—	—	—	—	1
French (3)	22	12	—	1	—	2	—	—	—	—	—	—	37
General History (1)	22	12	1	1	2	—	—	1	—	—	1	—	40
American History (2)	—	12	—	1	2	—	—	—	—	—	—	—	15
Mathematics (4)	22	12	1	1	2	—	—	1	1	—	1	—	41
Descriptive Geometry (1)	22	—	1	—	—	—	—	1	1	—	1	1	27
Drawing (3)	22	—	1	—	—	—	1	—	1	—	1	—	26
Mechanics (1)	22	12	1	1	2	—	—	1	1	—	1	—	41
Chemistry (3)	22	12	1	1	2	—	—	1	1	1	1	1	43
Number of Courses	10	9	10	9	9	2	2	7	6	1	8	2	8½
Hours per week	22	20	21	19	20	7	7	12	16	3	15	4	19

The following tables show the work done by Juniors in Science and Philosophy. The former elect one of the two languages offered, but Juniors in Chemistry and Mining are not required to take Logic and Ethics, and Juniors in Mining are further excused from History. Language and Mathematics are not prescribed for Juniors in Philosophy.

JUNIORS IN SCIENCE AND PHILOSOPHY.

SUBJECTS.	CHEM.	MIN.	CIVIL ENG.	DYN. ENG.	ARCH.	PHIL.	TOTAL									
Rhetoric (composition) . .	5	—	—	5	1	1	3	—	7	1	2	—	—	—	2	27
German (2)	5	1	—	5	1	—	—	—	7	1	—	—	—	—	—	19
French (2)	—	—	—	—	1	—	—	—	1	1	1	1	—	—	—	4
English Literature (2) . .	5	—	1	5	1	1	1	3	7	2	—	1	1	—	2	30
History (2)	5	—	—	5	1	—	—	3	7	1	2	—	1	—	—	25
Logic and Ethics (2) . .	—	—	—	5	1	1	1	3	7	1	2	1	—	—	2	24
Mathematics (4)	5	—	—	5	1	1	1	3	7	1	2	1	1	—	1	31
Physics (4)	5	—	—	5	1	1	1	3	7	1	2	1	1	—	2	34
Technical Subjects (11-20).	5	1	9	1	3	5	1	1	1	3	2	1	1	1	2	50

All the Seniors in Science and Philosophy pursued the full prescribed courses, excepting eight in Chemistry and one in Mining, who took the technical studies only.

SENIORS IN SCIENCE AND PHILOSOPHY.

SUBJECTS.	CHEM.		MINING.		CIV. ENG.	DYN. ENG.	ARCH.	PHIL.	TOTAL.	
Rhetoric (comp. and decl.)	3	1	—	2	—	9	4	1	3	23
English Literature (2)	—	—	—	—	—	—	—	—	3	3
Philosophy (3)	—	—	—	—	—	—	—	—	3	3
Social Science (1½)	3	1	—	2	—	9	4	1	3	23
Astronomy (1½)	3	—	—	2	—	9	4	—	3	21
Practical Physics (3)	3	—	—	2	—	9	4	1	—	20
Technical Subjects (9-25)	3	1	7	2	1	9	4	1	3	31

The work of the Post-Seniors in Science is entirely technical, and that of the students in Finance, Biology and Music confined to these subjects. Tables showing further details have been judged unnecessary.

It is of course impossible to describe in detail the work which has been accomplished in the various subjects during the year; a few points of general interest, however, may be briefly mentioned.

Latin and Greek have remained the leading languages in the Arts Course, and there appears no disposition to abandon these in favor of the Modern Languages. This is due in a large measure to the thorough and active spirit which characterizes the work in the classics. There is every reason to congratulate the University in having secured for the chair of Greek an instructor at once competent, enthusiastic

and progressive. I cannot do better, to show the condition of the courses in Greek, than to use Professor Lamberton's words:

"The aim of the department is to introduce the students to the Greek people in their language, in their literature and in their life. In other words, the student is to be made to feel that in reading a Greek work of any sort he is reading the natural expression of an actually living person under actually existing circumstances. These circumstances and their consequences must be made clear to him, and he must then be required, as far as his powers will admit of it, to render the Greek phrases into the English phrases that properly correspond. Familiar phrases must be rendered by familiar phrases; badinage by badinage; current expressions of politeness by current expressions of politeness; bombast by bombast; poetically-colored language by poetically-colored language. To this, it will be observed, more goes than the mere conning of the pages of a grammar and turning over the leaves of a dictionary. A certain knowledge of the outline of his people, his education and his surroundings, and a constant observation of the action and reaction of thought upon expression and of expression upon thought is needful. The personality of the author, the characteristics of his race, the sphere of literature within which he moves—all must be studied and taken into account. Much of this, most of it indeed, must be given to the student by his teacher; but if the student be not led to verify what he has been told by observations of his own, and to add to it also, comparatively little has been gained. He must not only be constantly drilled in the application of principles and truths learned from authoritative statements; he must be drilled as well in the habit of reading with his eyes open. The works read must be shown to be mines from which facts of all kinds, historic, biographical, antiquarian, may be gathered and pieced together to give us the framework of Greek life and thought. Even within the sphere of grammar the language must be presented, not as dead matter to be fitted into a Procrustean bed of cast-iron rules, but as a living thing, some of the features of whose life have been imperfectly summarized in the rules of syntax. To the facts of the language, and especially to comparisons of related facts, he must be directed for the testing of these rules. And in the matter of verbal forms and of the signification of words the same principle holds; the paradigms of the grammar and the definitions of the dictionary are to be checked off by the facts observed, and the student should be shown how, by comparison of parallel passages, to determine for himself the normal paradigms and the established usage of words. So pursued, it seems to me the study of Greek may become a school of expression, a school of literature, a school of hu-

manity, and a school of scientific observation as well. To this may easily be added a most useful training in consulting standard books of reference and in reporting accurately what is found in them. Many limitations will of course be encountered, arising from defective preparation, from the youth of the students, from deficiency in the power of systematic thought (in most cases this is directly attributable to youth); but in the main I think it practicable, and calculated to awaken interest and enthusiasm. It has been my endeavor during the past year to teach Greek in this fashion, and to present it as a language that has a principle of life in it, and that was once found adequate to all the wants of a highly intellectual people, from the expression of the most vulgar details of everyday life to the highest flights of poetry and the profoundest speculations of metaphysics. Before taking up the reading of any work it has been my practice to deliver one or two introductory lectures, with the aim of placing before the class the facts as to the author and the particular work to be read, and such other matter as might be necessary for an understanding of its occasion, its purport and its position in the literature. To this has been added the mention of certain standard works, easily accessible, which I have encouraged them and, as far as possible, forced them to read. I have not hesitated to advise the proper use of standard translations, such as Jervitt's Plato and Rawlinson's Herodotus. In the recitations I have insisted on a free translation in current English of to-day, however far it might be necessary to depart from the form of the Greek expression, but have always required an explanation and defense of the rendering given. Nothing is more injurious than the ordinary so called literal translation; the students are thereby led to believe, as an English teacher has well said, that 'any nonsense was good enough for the Greeks to talk and write.' Throughout, the endeavor has been made to get the student to observe for himself, to observe series of facts, to compare related passages and make deductions from the comparisons. How much has thus been accomplished it would be difficult to say, but something, I am satisfied, has been. On the literary side, the quality of the thought, the form of its expression, the stylistic effect of syntax, of the order of words, of the use of expletives, have been given due prominence."

Beyond all question, adequate and thorough instruction in the English Language is the most essential part of a college curriculum. This position of the subject has been fully appreciated by the Professor of English, who has labored to discover and apply the true methods of obtaining the best results. Unfortunately, from the lack of proper assistants and the limited number of hours assigned the courses, these

endeavors to reach the desired standard of excellence have been but partially successful. In no department is a large teaching force so necessary as for this work, which demands such close attention and so much labor in reading the literary attempts of almost every student in college. Unless this need is supplied, not only the prescribed work in Rhetoric and Composition suffers, but the development of the advanced work in Philology, Old English, Anglo-Saxon and the like is absolutely impossible. It is gratifying to be able to report that this year a suitable assistant has been secured and more time has been allotted to the department.

Since the publication of your last report the courses in English Literature have been entirely reorganized and given a more prominent place among the other studies. A new professorship has been created, the incumbent of which gives his attention exclusively to this subject. The courses, none of which are elective, but prescribed for all Sophomores and Juniors, and for Seniors in Arts, occupy nearly four times as many hours as formerly. Besides this important increase in hours, the method of instruction has been radically changed by the introduction of the seminary system, the aim of which, as applied to Undergraduates, is to insure a sufficient amount of reading and the evidence that this has been carefully done. It has been suggested to still further increase the hours for English Literature—not for the purpose of extending the courses, but of rendering the instruction more thorough; unless, however, some of them are made elective the measure seems at present impracticable. The request for more books, and especially the publications of the literary societies, is a reasonable one, and it is to be hoped that in the rapid increase of our collections this branch will not be overlooked.

Mention should be made in this place of an admirable course of Lectures on Shakespeare, delivered in the Chapel by Dr. Horace Howard Furness. These were of great interest and of the highest value, and their marked success suggests that a further extension of the plan to embrace lectures by eminent specialists in all lines of work would produce admirable results, provided the students were expected to attend as part of their required work.

The instruction in German and French in the earlier years of the Course in Science still suffers from the general inferiority of the preparatory training, in which a more thorough drill in ordinary parsing is imperatively needed. Without doubt this is, in part, the fault of the College in years past in not exacting better work at the entrance examinations, and, in part, owing to the different views held by instructors engaged in the preparatory work, of the true nature of the

requirements and the best methods of instruction calculated to satisfy them. These faults can be corrected by more rigid examinations, and by making clear that the ability to converse in a language, however freely, if unaccompanied by an accurate knowledge of its structure, will be by no means considered as preparation for the college work, the aim of which is, in addition to general mental training, to provide the student with such an acquaintance with the language as will enable him to read readily and accurately the scientific literature of his profession. *

In the Arts Course, in which French and German are elective in Junior and Senior year, notwithstanding the requirement that the students shall know something of these languages before beginning the work, the classes were large; in French, indeed, the largest, in the Junior year, of any since elections were introduced.

The well known excellence of the instruction in Mathematics and Physics has been fully maintained, and further increased by careful revision of the courses and the employment of additional instructors. These departments have therefore been able to offer this year a larger number of electives, particularly in advanced Mathematics and laboratory instruction in Physics.

It is interesting to note that the work in Philosophy is tending steadily toward the scientific aspect of the subject. This has led to the development of the laboratory courses in Psychology, which, although opened late in the year, were well attended. The laboratories of Experimental Psychology in Biological Hall are held to be, with a single exception, the best in existence.

The recent publication of a Handbook of Information concerning the School of Biology renders a detailed report of the condition of that department unnecessary. The instruction has been rendered more effective by increasing the number of assistants, by the preparation of laboratory guides and the accumulation of better supplies of illustrative material. The amount and character of the original work done by members of the faculty during the year have been notable, and papers of importance are ready for publication. The number of students has increased to such an extent that the problem of handling the large classes in the present laboratories has become a source of much anxiety. The Zoölogical and Botanical collections have outgrown the Museum room, and are now packed in available spaces throughout the building. This is unfortunate, as there is practically no limit to the amount of material which can be obtained without expense.

The work of the Technical Departments, the amount and scope of which are sufficiently shown in the tables on pp. 56-63, was characterized by great energy and thoroughness.

A large proportion of theses of the Seniors and Post-Seniors were based upon original investigations, and some have been already published. In view of the increasing worth of these researches, it is proposed at the close of the present year to print a bulletin containing abstracts of the papers and theses prepared during the year.

There can be no stronger proof of the value of our technical courses and of the high rank they take in popular estimation than the fact that almost all the graduates of last year have already found professional positions, some of which are exceptionally lucrative.

In addition to the routine of regular class work, the instructors in Mechanical Engineering have been busily engaged during much of the year in planning and completing the very important alterations in the laboratories described on page 77, and in selecting and regulating the machinery and other apparatus purchased with funds collected by the Committee of the Board. The Professor in charge gave his entire summer to these improvements, and has every reason to feel gratified with the results.

I desire to call particular attention to the condition of the courses in Drawing and Architecture. These during the year were under the charge of a single Professor and attended by 116 students.

When one remembers the character of these subjects and the consequent impossibility of giving the instruction by lecture and recitation, it becomes at once evident that with one instructor and such a number of students satisfactory results cannot be obtained. This is particularly true of the elementary courses in Freehand and Mechanical Drawing, the hours for which were necessarily restricted. As many as sixty students—Freshmen of all grades of ability and diligence—were assigned to the instructor at one time, thus allowing on an average one minute of personal supervision to each student. The Sophomores were more fortunate, as the class was much smaller. The majority of the students taking the courses in Architecture were from the Civil Engineering section, and but four were in the Architectural course proper. There is no prospect that the number of applicants for this important professional training will increase unless prompt action is taken to improve the instruction in Drawing in the earlier years, and means are found to develop and add attractions to the course itself. To do this it is suggested that at least two additional instructors be secured, one of whom shall be thoroughly acquainted with the kind of work needed in preparation for the Engineering courses; the classes be divided into small sections to secure direct instruction; the student be allowed to take the kind of drawing most suitable for the line of study he proposes to follow in Junior year; and more thorough courses in additional lines

of artistic work be established, and the illustrative material largely increased.

The remarkable success of the Wharton School has justified the most sanguine expectations, and has proved conclusively the importance of the subjects taught as elements in general education and as preparation for business life, or the professions of law, politics and journalism. The School has been greatly strengthened by the election of Dr. Patten to the chair of Political Economy and by the reconstruction of the courses in Business, Law and Practice.

The instruction in Bookkeeping, which was open to criticism in previous years, has been put upon a new basis and is now one of the features of the department. The high grade of the work in American History is too well known to call for special mention, but attention should be directed to the admirable workings of the Seminary methods and the practical value of the Wharton School Congress—a body fashioned after the Congress of the United States for the discussion of the topics of the day and instruction in legislative procedure. For some time the School has been sorely hampered by insufficiency of library facilities. Fortunately this urgent need has been met by a further gift from Mr. Joseph Wharton of twenty-five thousand dollars, the interest of which shall be spent for works on Economics and Politics.

Owing to Professor James' absence in Europe last year, a special arrangement in the curriculum was found necessary, but no courses were actually omitted, as the work was divided among the other members of the Faculty.

The course in Physical Education given during the last College year was far from satisfactory. A certain proportion of the students were given the physical examinations, but systematic work by all, whether interested or not in athletics, was practically a failure, and the gymnasium was closed for the greater part of the time to the College at large. This was due to the neglect to provide an experienced trainer who should be continuously in the gymnasium to give the necessary instruction, and to the fact that although the Faculty required all Freshmen and Sophomores to spend at least two hours a week in the gymnasium, no hours were assigned upon the roster for this work. This year happily the system has been reorganized. The gymnasium hours for Freshmen and Sophomores have been carefully arranged where they will be of most use in breaking the mental strain induced by continuous work in the recitation room and laboratory. An expert instructor is in the gymnasium not only at those hours, but meets the upper classes at regular periods. With

very few exceptions all the lower class men have been carefully examined. These examinations show a marked gain in the average physical development and that the general health of the students has been very good. While the importance of proper physical training can scarcely be overestimated, there is always present the danger of serious interruption of the intellectual side of the student's education by the abuse of athletic sports. To guard against this danger and to check other evils which have already arisen, the Faculty has appointed a Committee which, with the assistance of representatives from the Graduate Advisory Committees, shall formulate the regulations necessary to properly govern College Athletics.

No alterations in the requirements for admission to the Freshman Class for the Courses in Arts or Science have been made during the year. English, History and Mathematics, including Arithmetic, Algebra and Plane Geometry, are prescribed for all candidates irrespective of the course they propose to enter. In addition to these subjects, applicants to the Arts Course must present Latin and Greek, and students who desire to take the Course in Science are examined in Solid Geometry and two of the three languages, Latin, German and French. The requirements for the Arts or Science Course will be accepted for entrance to the new Course in Natural History, or candidates may offer a third combination of studies. Some of these subjects are prescribed and some are elective. Of the former class are the English, History and Mathematics required of all candidates, Physical Geography and Advanced English. The electives, four of which must be chosen, are Latin, English History, Mathematics, Astronomy, Geology, Physics, Chemistry, Zoölogy, Botany and Physiology.

The adoption of such requirements marks an important step in the history of the University. It is not only a recognition of the educational value of the Sciences in preparation for College work, but will tend to bridge the gap which has hitherto unfortunately existed between the University and the high schools of the State. It has been thought by some that this action has lowered the standard of the entrance examinations. This is in no sense the case. A closer examination of the requirements will show that to pass the examinations—and for the present no certificates covering these subjects can be received—will demand more time in preparatory study, and consequently a higher degree of mental maturity. A student, it is true, may now enter the Natural History Course without the knowledge of any language except English, but in that case, to avoid unequal development, he must devote a larger proportion of his course to the

acquisition of Latin, German or French. It is of interest in this connection to be able to say that the progress made by the few students who have begun the study of these languages in College has been most satisfactory.

The admission of students to College without examination, upon the certificate of the schoolmaster, has not been in operation for a sufficient time to enable us to form a decided opinion or to offer statistics of value. The results thus far obtained appear to show little difference with regard to the quality of the preparatory training between the students admitted by this method and those who pass the regular examinations. It should be remembered, however, when making comparisons between the two classes, that the student's progress during the first term of Freshman year is not a safe index of his preparation, since it not infrequently happens that the most carefully trained pupil falls into careless ways, while others who have had but indifferent opportunities attain creditable rank by additional labor. It has been shown, however, by the experience of two years that the admission of students by certificate must be most carefully guarded, not only in the interest of the College, but for the protection and encouragement of the schoolmaster. With these objects in view the Faculty has recently established two important rules. The first of these requires that the certificate shall cover all the studies prescribed for admission to the course selected, and the full requirement in each subject. No partial certificate can therefore be accepted. The second rule states that certificates will be received from the private tutors who have been especially accorded this privilege, only on condition that the pupil has been under his care for at least two consecutive school years. It is felt to be essential to the development of a higher standard of preparatory training that the student shall deliberately and thoroughly carry to completion the courses of study which have been so carefully arranged by the masters of our schools. There will certainly be fewer cases of failure in College if parents can realize more fully that hasty preparatory work, even if it effects the completion of the technical requirement for admission, can never have great educational value.

Some changes have been made recently in the courses of instruction offered by the College Faculty. The Course in Philosophy for Undergraduates has been replaced by a four-year's course in Natural History, leading to the degree of Bachelor of Science. This course differs from those in Arts, Science or Finance in being broadly elective. No electives, it is true, are offered in Freshman year, and in addition to English, Mathematics, History and Drawing, General Biology is required, but

after this year the student is at liberty to choose almost freely from an excellent list of subjects, which are in the main scientific. The required work in the foreign languages may be confined to a single year or be taken through the four. The course is open in the Junior year to students who have passed the Freshman and Sophomore years in Arts or Science. In these courses the Freshman work in English has been increased from two to three hours per week. The additional hour is used for practical exercises in composition. An important change has been made in the method of teaching Chemistry to all Sophomores and other beginners. The old plan of illustrated lectures with weekly recitations was found unsatisfactory, and it was decided to place the students at once in the laboratories and limit the lectures to informal explanatory talks and the recitation to frequent quizzes. This has not been an easy task, and has cost the expenditure of much energy, time and money. A room which could be transformed into a laboratory was found and fitted up with the necessary furniture and apparatus. To insure direct personal supervision by the instructors, the class was divided into five sections of about twenty-five each, one afternoon per week being given to each section. The results thus far obtained have been most encouraging. The students take a lively interest in the work, and although they will not succeed in covering so much ground as under the old lecture system, their knowledge will be more exact and thoroughly practical.

The Course in Arts remains substantially the same as heretofore. New electives in English, Psychology, Biology, Physics, Chemistry and Mathematics are offered in the later years; the instruction in Astronomy and Political Economy is increased to two hours for each subject throughout the year, and equivalent courses in Psychology can be substituted by Seniors for the required work in Philosophy. A few changes additional to those already mentioned have been made in the curriculum of the Course in Science. In the Sophomore year Descriptive Geometry has been given two hours a week in place of one throughout the year. The advantage of this addition has been already shown in the fact that very few students failed in the mid-year examinations, whereas in former years the majority of the class were conditioned in this subject at the close of the first term. The course in History, which is taken in place of those in Descriptive Geometry and Drawing by Sophomores who intend entering the Wharton School in Junior year, has been increased to three weekly exercises throughout the year. The course in the Wharton School has been further modified only in some unimportant details. In the technical courses in the Towne Scientific School a few alterations have been effected. Additional hours for

analytic work have been secured for Senior Chemists, and much time has been gained for the Juniors and Seniors in Mechanical Engineering by having the workshops in the College building.

Much attention has been bestowed upon the condition of the College buildings, and a general renovation has been begun and many important improvements have been effected. The entire basement has been calsomined and painted. The dressing rooms have been enlarged and furnished with new ventilated water-closets, wash-stands and mirrors; the old asphalt floor has been replaced by one of concrete, and the windows cut down to admit more light. The laboratories of Mechanical Engineering have been entirely remodeled and increased by the addition of a large room formerly used for the storage of chemical apparatus. The suite now consists of three laboratories; one is devoted entirely to electrical work, and is fitted up with all the necessary instruments of precision. The middle one, the former dynamical laboratory, is devoted mainly to testing experiments, and contains a 10 x 24 Hamilton-Corliss engine, an Olson testing machine, pumps, condensers, etc. In the new laboratory are the workshops—one for woodwork and the other for ironwork—equipped with benches, lathes and the necessary hand tools. Power is furnished by an 8 x 16 Porter-Allen engine, supplied by steam from a steel boiler with a capacity of 25 horse-power, which also supplies the Corliss engine in the other laboratory. An Edison dynamo generates the electricity used in lighting the laboratories and charging the storage batteries, and in the electrical tests.

The department of Metallurgy and Mining has likewise been provided with additional accommodations. The two rooms adjoining the assay room have been fitted up as laboratories for mineralogy and mining. The larger one, formerly the carpenter shop, has been divided by wooden and glass partitions into a chemical laboratory, furnished with desks, hoods and the special apparatus required; a drawing room and a dark room for spectroscopic and goniometric work. The smaller room, hitherto not used, forms a very well-equipped private laboratory for the Professor in charge. The room formerly used as a restaurant has been utilized as a carpentershop. New benches and tools have been added for the use of the students in the Civil Engineering Course. On the first floor a private room for the Professor of Mechanical Engineering has been obtained by cutting off ten feet from the rear of the large chemical lecture room. The old chemical reading room, once the private laboratory of the Professor of Chemistry, is now used as the Dean's office, and with the Secretary's office, which adjoins, has been completely refurnished. A door has been introduced between the small

chemical lecture room and the old balance room, and the latter converted into a private room for the Professor of Organic Chemistry. Much space has been gained in the organic laboratory by the removal of the mineralogical work to the lower floor. On the second floor one of the larger Wharton School rooms has been divided and an additional recitation room has been added to the suite, thus making in all five rooms strictly devoted to the work of this School.

The old mining drawing room has been fitted up as a chemical laboratory for beginners. New backs have been put in most of the benches in the Chapel and the platforms have been recarpeted. A private room for the Professor of Assyrian has been secured by reducing the size of the largest mathematical recitation room. The old examination hall or law room has been painted and calsomined and two large sky-lights let into the roof. It has been divided by low partitions into a number of smaller rooms which are now occupied by the archæological and ethnological collections, but which are intended for the different branches of architectural instruction, such as modeling, water-color painting, sketching, etc. It is the intention to thoroughly repair the entire building. This can be done at a small cost; a painter and plasterer have been added to the force of employees, and the work progresses at the rate of about one room finished each week. The difficult problem of cleaning a large building in constant use during the day has been more nearly solved by having the work done at night. Once in twenty-four hours all the halls, dressing rooms and assembly rooms can be scrubbed, the recitation rooms swept and dusted, and a certain number of the latter more thoroughly cleaned.

The College building is now badly crowded; almost every room is used continuously from nine until four, and a special roster for the use of rooms has been found necessary. Further extension of the courses will soon be impossible from lack of accommodation. In addition to the great need of more recitation and private rooms, space must be found for the proper display of the growing collections illustrating industrial chemistry, engineering and the arts. If certain of the technical departments could be provided with a separate building, the rooms they now occupy could be profitably devoted to the literary and pure science work, and if the religious services could be conducted in a chapel building, the present Chapel would give an ample hall well adapted for museum purposes.

Owing to the unavoidable disorder produced by the erection of the library building, little has been done toward improving the main College campus. The drives and walks have been repaired and a few new drains added. The work on the botanical garden, lying to the east and

west of Biological Hall, has been pushed as fast as the available means would permit. Already a large plot of ground is under cultivation, and it is expected that by the end of the coming summer the remainder of the space set aside for this purpose will be in order. Additional greenhouse facilities are needed, as the present small building is now entirely inadequate.

The dining-hall, a temporary wooden building one hundred feet long by fifty wide, with a kitchen annex fifty by twenty five feet, was erected this autumn and is an important addition. No lectures or recitations are now held during the hour from one until two, which ensures a fixed time for rest and a proper mid-day meal for all instructors and students. Under the present conditions of college life it has not been found practicable to increase the intermission to two hours, as was suggested by an alumni committee. While it is probable that the majority of students in the College Department will always reside at home, for a constantly increasing class dormitories are imperatively needed. It has been found practically impossible to exercise the supervision which is expected—and often directly requested—by guardians if the students live in boarding houses over which our control is at best but indirect.

The general order in the College during the year has been excellent and no serious case of discipline has been brought before the Executive Committee. The personal conduct of the students has been marked by a more manly tone, due without doubt to a more thorough enjoyment of college life, the absence of all espionage, and the more intimate association of the instructor with the pupil. As this personal relation is regarded as the most important of all educational means, every effort has been made to abandon the instruction of large classes by substituting, where possible, practical exercises for lectures and by subdividing the lower classes into smaller sections. The elections permitted in Junior and Senior years separate the students in these classes into convenient divisions, and the general adoption of the informal seminary methods is producing most excellent results.

Although religious instruction is not a part of the College curriculum, and while any teaching having a denominational character would be in violation of the traditions and pledges of the University, yet the fact that four or five hundred students are placed under our care at a critical and impressionable age offers an opportunity for effecting so much good that the moral responsibility of providing adequate ethical influence is keenly felt. It is certain that very little is accomplished by the present system of compulsory attendance upon the Chapel exercises. Indeed it has been questioned if actual harm is not done to those

interested by the presence of a body of students who are entirely indifferent. Although the services have been greatly improved during the past few years, until in their present form they appear admirably suitable, a decided lack of interest is noticeable. This is due in part to the fact that the attendance is compulsory, and in part to the absence of all religious association connected with the hall in which the exercises are held, since the present Chapel on the second floor of the College building, as the only large and handsomely furnished hall in the University, is used for all large entertainments given by the University, the Alumni or the students. With the existing hours and accommodations, and the consequent impossibility of reaching students in other departments of the University, it is probable that if Chapel were at once made voluntary the attendance would be very meagre.

It is evident therefore that for the proper development of this work there exists a real need for a separate Chapel building. The morning exercises might then be made voluntary and would be well attended, and Sunday services conducted by clergymen of different denominations could be made a real feature in the University life.

In addition, the most active encouragement should be given to the various religious societies existing among the students, and it is to be hoped that the friends of these movements will give the comparatively small sum of money needed to build the guild houses and halls which are contemplated.

I have the honor to remain, very respectfully,

HORACE JAYNE, *Dean.*

APPENDIX VIII.

DEPARTMENT OF MEDICINE.

TO THE PROVOST OF THE UNIVERSITY.

DEAR SIR:—As Dean of the Department of Medicine I beg to submit the following report:

During the session of 1887-8 four hundred and thirty-five students attended the instruction in this Department. Of these—

	3	were students of the fourth year,
136	"	" third "
150	"	" second "
128	"	" first "
18 were special students, making a total of 435.		

During the session of 1888-9 there were four hundred and forty-four students in attendance, made up as follows :

2 were students of the fourth year,			
160	"	"	third "
134	"	"	second "
139	"	"	first "

9 were special students, or a total of 444.

This number was the largest in attendance since the session of 1859-60, when 528 matriculates appear to have been enrolled, but an examination of the catalogue of that year discovers 90 of these to be graduates in Medicine, almost none of whom were probably *bona fide* students, it being the practice in those days to invite graduates to enroll their names regardless of attendance, a practice which I am glad to say has long been discontinued; and if these be deducted the list of that day will be reduced to 438, making the class in attendance for the session of 1888-9 probably the largest in the history of the school.

It will be seen, however, from the above that while the total number of students is steadily increasing, that of the fourth year not only exhibits no increase, but even shows a falling off. If we add to this the fact that among those who take the fourth year course are almost none of our own students, but that they consist mainly of men from other schools who desire to complete their preparation by means of the better elaborated courses, and especially the clinical facilities afforded by a large city and an old school, it is plain that we cannot expect for a long time, if ever, to establish a fourth year through the voluntary election of students themselves. At the same time it is fully realized by all who are brought into intimate contact with our students that the willing ones are overworked, that insufficient time is given to recreation and physical exercise, and that the health of many suffers in consequence. Scarcely a year passes in which one or more of our graduates do not perish from consumption or typhoid fever, the conditions favoring their development having been furnished by too close application to study. On the other hand, we realize more fully each year that the amount of clinical instruction given is altogether insufficient to secure that familiarity with disease and its treatment which is the ultimate object of the medical education. More hours are needed for this purpose, and these can only be acquired by the addition of a fourth year to the curriculum, while a much needed relief to the exertions of an overcrowded third year can only be met in the same way. Naturally, therefore, our thoughts are much turned to this greatly needed change, and to a consideration of the difficulties and objections in the way of its immediate attainment. These, to my mind, resolve

themselves into but one difficulty and one objection, and each grows out of a single consequence, viz., the apparently inevitable falling off in the number of students. The difficulty thus resulting is the reduced revenue to the school, and consequent inadequate compensation of its teachers, and the objection is the diminished influence of the school which must result from a decrease in its disciples, each one of whom is an advertisement of its qualities and its methods, as well as a distributor of its good work. A sufficient endowment fund would obviate both difficulty and objection. Let us consider our wants in this respect. At present it will be sufficiently correct, basing the estimate on the class of 1888-9, to place the total number of paying students at 375, or an average in each class of 125, each of whom pays \$150, making an annual income from this source at \$56,250. Should, however, a compulsory four years' course be instituted, it may reasonably be expected that there will be a falling off of at least 25 per cent., reducing each class to 94 (93 $\frac{1}{2}$). But since, as soon as the four years' course is fully established, there will be four classes in attendance, there will still be 375 in all, which, at \$150 each, would yield \$56,250, as before. But if the fee for the fourth year were reduced to \$100, as, for many reasons, seems desirable, the annual income from this source would be reduced to \$51,550, a loss of \$4,700. This is independent of matriculation fees, which would be reduced from an average of \$625 annually to \$470, a further loss of \$155, or a total of \$4,855. A principal sum of \$100,000, at 5 per cent.—a high rate of interest to-day—would little more than make up this deficiency, to say nothing of increased outlay demanded for additional instructors required by a four years' course. Suppose, however, such a sum of \$100,000 could be raised with the understanding that the income therefrom should be used to increase the number of free scholars, what would be the effect on the classes? At the same rate of interest, each \$3,000 of principal would yield \$150, a single tuition fee, and the whole sum would yield enough to permit the admission of 33 free students, which, added to the 375 paying men, would be 408; and if to these be added the 18 existing free scholarships, the total of students would be 426, essentially as many as at the present day. So that the influence of the school, so far as dependent on numbers, would be maintained, while its reputation would be greatly enhanced by the fact that it maintained a four years' curriculum.

It is reasonable to suppose that an appeal for an endowment fund, with the understanding that its income shall be devoted to increasing the number of free students, would be favorably considered by the community, while there can be little doubt but that the Medical

Faculty would feel justified in recommending the change if such a sum could be secured.

A noteworthy fact, and one requiring explanation, is the very large number of students in the third or graduating year for the session of 1888-9. This is chiefly due to the fact that in this class are included a rather larger number than usual who, having failed the previous year to pass the final examinations, repeated the third year, or certain branches in it. A smaller accession is caused by admissions to advanced standing, those to the third year seldom exceeding two or three. It is the second year which receives the largest accession from this source, the larger number being graduates of Pharmacy who are admitted on their diplomas to this year. The second year class of 1887-8 contained 17 from this source, and the second year class of 1888-9, 8. These students do not as a rule do us much credit. They enter without any knowledge of Anatomy and Physiology, and have to finish these courses in one term, while the students who are with us three years repeat the courses in Anatomy and Physiology. There are, however, a few signal exceptions to this, and from the last class one of these graduates of Pharmacy passed the very rigid examination of the Naval Board even before he passed his final graduation examination with us.

Of the students admitted to the Freshman or first year class of 1887-8, numbering 128, 28, or 22 per cent. only, possessed degrees in Arts or Science, 76, or 60 per cent., were admitted upon certificates from recognized high schools and academies, and 24, or 18 per cent., were admitted after examination in Physics and English. Of those examined in Physics 10 were admitted conditioned on this branch, which seems to be much neglected in the preparatory schools. Of the total number of students in the class of 1887-8 (435, omitting special students, 417), 107 possessed literary or scientific degrees, 25 were admitted to advanced standing, 20 to the second year, 3 to the third and 2 to the fourth.

Of the Freshman class of 1888-9, 42 were admitted on degrees in Arts or Sciences, 81 were admitted upon certificates, and 16 were admitted after examination in Physics and English. Of those examined in Physics, 12 were admitted conditioned on this branch. It is an interesting fact that up to the present time no student who was admitted conditioned failed on any studies in course, the failures being among those admitted on certificates. It is intended to diminish gradually the admissions upon certificate. Of the total number of students in the class of 1888-9 (444, omitting special students, 435), 121 possessed Literary or Scientific degrees, 21 were admitted to advanced standing, 13 to the second year, 6 to the third and 2 to the fourth.

I append an interesting table showing how many of the first year class held degrees in Arts or Science at date of admission in each of the last twelve years, since the compulsory three years' course was established :

YEAR.	TOTAL CLASS.	DEGREES.	PER CENT.
1877-8	136	19	13.9
1878-9	123	20	16.2
1879-80	133	33	24.8
1880-81	109	34	31.1
1881-2	98	24	24.5
1882-3	115	33	28.7
1883-4	140	43	30.8
1884-5	101	38	37.6
1885-6	131	35	27.
1886-7	137	43	31.4
1887-8	128	28	22.0
1888-9	139	42	30.0

It will be noted that the percentage is a very irregular one, and cannot even be said to be gradually increasing. If, however, the average of the five years, 1877-8 to 1881-2 inclusive, be compared with the average of the second five, 1882-3 to 1886-7, it will be found that there is an increase in the percentage of college graduates of 4.7 per cent. only.

The fire which consumed the entire fourth story of Medical Hall on the morning of May 31st, 1888, destroying almost everything in the way of apparatus and preparations in the Histological and Pathological Laboratories, and irreparably injuring in certain respects the Wistar and Horner Museum and the Stillé Medical Library, proved in some respects a blessing in disguise. The insurance companies were very liberal in their allowances, making an award of \$14,825.00 for loss on building and \$15,098.75 on Museum and apparatus, including the portraits in the Museum, two of which alone were completely destroyed.

Advantage was taken of the rebuilding to remodel the Histological and Pathological Laboratories, which had become somewhat antiquated, to better adapt the light for microscopic work, to provide facilities for micro-photography in both departments, and for the study of Bacteriology. The elements of this important department of modern Pathology are now taught to each member of the graduating class, and each one has a sufficient knowledge to enable him to undertake work of this kind if he cares to do so. A very superior animal house was also built in the upper story, with every facility for washing and

draining, and up to the present time has been found eminently satisfactory. In other ways, too, the new superstructure is superior to the old. This renewal of Medical Hall, as was expected, was found to cost more than the insurance recovered, and as it soon became evident that it would not be necessary or even possible to replace all the lost and injured specimens and portraits of the Wistar and Horner Museum, and that therefore some of the insurance money allowed for these would not be needed; also that certain expenditures could not be sharply defined as chargeable to one or other insurance fund, by decision of the Trustees the two funds were regarded as one, against which all renewals and replacements were charged. The total thus rendered available was \$29,923.75. Out of this the Medical Hall was restored, the outfit of microscopes was practically renewed, the Histological and Pathological Laboratories were supplied with a full outfit of other apparatus of all kinds required for conducting the work of these departments, the portraits in the Museum were cleaned, reframed and rehung, and by order of the Trustees \$370 were appropriated to make up the deficit in the sum raised by the class toward the new portrait of Professor Agnew. The anatomical losses of the Wistar and Horner Museum were replaced as far as they could be in this country, and \$2,500 were appropriated for the purchase of anatomical preparations in Europe by Professor Leidy, who is at this time abroad for the purpose. Certain renewals of plastering in different parts of Medical Hall, made in June and July of this year, were also ordered by the Chairman on Buildings, Estates and Properties to be charged to the insurance fund, because deemed indirectly caused by the fire. The estimated cost of these was \$330. Notwithstanding these extensive repairs and purchases, a balance of the insurance fund, amounting to about \$8,000, remains unexpended. This balance has been further diminished by charges made against it.

At this time the Medical Department is in possession of 78 excellent microscopes, essentially new, including one first-class Zeiss instrument, with Abbe condenser, and lenses BB, DD, and a $\frac{1}{4}$ oil immersion, three compensating oculars and one projecting ocular. The remaining instruments include, in the Histological Laboratory, 36 Zentmayer's microscopes, each with double nose piece, an $\frac{1}{8}$ in. and $\frac{1}{4}$ in. objective and A and B oculars; in the Pathological Laboratory, 34 Zentmayer's microscopes, each with $\frac{1}{4}$ objective and B ocular; and in the Clinical Laboratory at the Hospital, one Leitz stand, equipped with a $\frac{1}{4}$, a $\frac{1}{2}$, and a $\frac{1}{8}$ oil immersion lenses, eye-pieces A and C, iris diaphragm and Abbe condenser.

The largest irreparable loss, the result of the fire, was that of the

Stillé Medical Library, almost entirely from the water with which the building was deluged. This loss consisted in damage to the books and their bindings amounting to \$7,500, estimated by Mr. Gregory B. Keen, the Librarian of the University; and as there was no insurance on this it is total. With the consent of the founder, Dr. Alfred Stillé, the library is temporarily stored in the building of the Department of Arts and Sciences until the completion of the new fire-proof library building, where it will be suitably housed. The accident to the Wistar and Horner Museum also emphasized a point long insisted upon by Professor Leidy, that it was most important to the interests of the Museum that it should have a paid Curator in charge of the collection and responsible for its condition, including the renewal of worn-out specimens, and the preparation of a revised catalogue for publication, this in addition to the mechanician or preparer who is already employed for this purpose, and who needs direction in his work. It having been intimated that friends of the University would ultimately provide a principal sum, the interest of which would pay for the services of such a Curator, it was decided to attempt to raise a temporary fund to last until such time as the larger sum is provided. In response to this effort, \$1,800 were subscribed as follows: \$250 each by Isaac J. Wistar, Esther F. Wistar, Henry C. Gibson, Charles E. Smith, Charles C. Harrison and the Medical Faculty; and \$150 each by Clarence S. Bement and Richard Wood. It is hoped that other subscriptions will be obtained, raising the sum to \$2,500.

The collection of morbid specimens intended for hand-to-hand demonstration has been very largely increased since my last report, through the enthusiastic efforts of Dr. Henry F. Formad, the Demonstrator of Pathology. The collection now contains 600 specimens, notwithstanding many lost by the fire remain unreplaced. They are stored on shelves provided in the reconstruction of the Laboratory, and are classified, those of a kind being placed in separate labeled jars, whence they can be easily removed when desired to illustrate a given disease. They are also used in the final examinations to test the knowledge of the student in Practical Pathology. Glass for their storage to the value of \$500 has been gradually accumulated.

The past two years have witnessed the construction and equipment of a small Maternity Hospital out of funds which have been raised for the purpose by Professor Barton Cooke Hirst. It will go into operation with the beginning of the coming winter session, and will be used in connection with the general hospital of the University. By means of this arrangement, notwithstanding the limited capacity

of the Maternity Department, the beds can be rapidly emptied, and it is expected that a sufficient number of cases may be admitted to permit each member of the graduating class to have some experience.

The appended table indicates the subjects taught and the number of hours per week devoted thereto in the past winter's session, 1888-9, by the professors and instructors:

First Year.

Instructors.	Subjects.	Exercises per week.
Prof. Leidy	Descriptive Anatomy	3
Dr. Deaver	Topographical Anatomy	2
Drs. Deaver, Holmes, Neilson, Richardson and Roberts	{ Practical Anatomy (Dissection)	10
Drs. Piersol, Chambers and Robert Formad	Histology, laboratory instruction, 10; 1 hour demonstration	11
Dr. Miller	Mat. Medica and Pharmacy, lecture	1
Dr. Toboldt	{ Practical Pharmacy, laboratory exercises	4
Prof. Wormley	{ General Chemistry, including Chemical Physics	2
Drs. Marshall and Cattell	Practical Chemistry, laboratory	4
Prof. Reichert	Physiology	3
Prof. Tyson	General Pathology	1
Prof. Dickson	Hygiene	1
Prof. Agnew, Pepper and Ashhurst	General Clinics, Medical and Surgical	3

Second Year.

Prof. Leidy	Anatomy	3
Dr. Deaver	Topographical Anatomy	2
Drs. Deaver, Holmes, Neilson, Richardson and Roberts	{ Dissection	10
Prof. Wormley	Medical Chemistry, lecture	1
Drs. Marshall and Cattell	{ Laboratory Exercises in Medical Chemistry	4
Prof. Reichert	Physiology	3
Prof. Tyson	{ General Pathology and Morbid Anatomy	2
Drs. H. F. Formad and A. J. Smith	Laboratory Exercises in Pathological Histology	5
Prof. Bruen	{ Physical Diagnosis, 1 lecture per week, 2 hours' practical instruction	3
Prof. Wood	Therapeutics	2
Prof. Pepper	Theory and Practice of Medicine	3
Prof. Agnew	Surgery	3

Instructors.	Subjects.	Exercises per week.
Profs. Hirst and Kelly . .	Obstetrics	2
Profs. Agnew, Pepper, Ash- hurst and Osler	General Clinics, Medical and Sur- gical	4
Profs. Wood, Norris, Straw- bridge, Goodell and Dr. Stelwagon	Special Clinics (Nervous Diseases, Diseases of the Skin, Eye, Ear, Diseases of Women and Children)	5

Third Year.

Prof. Tyson	{ General Pathology and Morbid Anatomy, including demonstra- tions	3
Dr. Formad	Demonstrations in Morbid Anatomy	2
Prof. Wood	Therapeutics	2
Prof. Pepper	Theory and Practice of Medicine . .	3
Prof. Agnew	Surgery	3
Prof. White and Drs. Davis and Martin	{ Operative Surgery, Minor Surgery and Bandaging, 1 lecture per week, 2 hours' practice	3
Profs. Hirst and Kelly . .	Obstetrics	3
Prof. Hirst	{ Operative Obstetrics, 1 hour practice, ½ term	1
Prof. Goodell and Dr. Tay- lor	Gynæcology, 1 lecture per week, 3 hours' bedside teaching	4
Prof. Osler and Drs. Da- land, Mitchell, Edwards and Griffith	{ Bedside Instruction in Practical Medicine	3
Prof. Ashhurst	{ Bedside Instruction in Practical Sur- gery	3
Profs. Agnew, Pepper, Ash- hurst and Osler	General Clinics, Medical and Sur- gical	4
Profs. Wood, Norris, Straw- bridge, Goodell, Starr, White and Dr. Stel- wagon	Special Clinics (Nervous Diseases, Diseases of the Skin, Eye, Ear, Gynæcology, Children, Genito-uri- nary Diseases	6½
Prof. Reese	{ Medical Jurisprudence and Toxi- cology	1

Fourth Year.

Profs. Pepper and Osler, and Drs. Musser and Seller	Clinical Medicine and Physical Diag- nosis, including Laryngology— practical instruction	{ 4 before Jan. 1. 5 after Jan. 1.
Profs. Agnew and Ashhurst	{ Clinical Surgery—clinical lecture, practical instruction	3
Drs. Neilson and Martin .	{ Operative Surgery and Genito-uri- nary Diseases—practical instruc- tion	1
Prof. White	{ Clinical Instruction in Genito-uri- nary Diseases	1 after Jan. 1.

Instructors.	Subjects.	Exercises per week.
Prof. Wood and Drs. Lloyd and Dercum	Nervous Diseases and Electro-Therapeutics—clinical lecture, practical instruction	{ 3 until Jan. 1. 2 after Jan. 1.
Dr. Mills	Mental Diseases	1
Prof. Goodell and Dr. Taylor	Gynecology—didactic lecture, clinical lecture, practical instruction	3
Prof. Starr	Diseases of Children—1 hour clinical lecture	1 until Jan. 1.
Dr. Stelwagon	Dermatology—didactic lecture, clinical lecture, practical instruction	{ 3 until Jan. 1. 2 after Jan. 1.
Prof. Strawbridge and Dr. Ziegler	Otology—didactic lecture for half session, practical instruction for half session	{ 1 until Jan. 1. 1 after Jan. 1.
Prof. Norris and Dr. Risley	Ophthalmology—didactic lecture, clinical lecture, practical instruction	3
Prof. Hirst	Clinical and Operative Obstetrics—practical instruction for half the session	1 until Jan. 1.
Drs. Willard and Young	Orthopedic Surgery—didactic lecture for half session, practical instruction for half session	{ 1 after Jan. 1. 1 until Jan. 1.
Prof. Reese	Medical Jurisprudence and Toxicology	1

Appended is a condensed statement of income and disbursements for session 1888-9:

Income.

Tuition and Matriculation Fees	\$57,720 00
Fees from previous years	407 50
Dental Department Fees, Gas and Chemicals	550 25
Dissecting Room	528 50
Chemical Laboratory (breakage)	205 09
Biological Department (alcohol)	75 90
Veterinary Department (alcohol and chemicals)	61 62
Closet Fees	99 00
Duplicate Diploma	10 00
Special Students (7)	615 00
Total from Students and allied sources	\$60,272 85
Less Fees returned	658 75
	\$59,611 11
Additional income: Barton Fund	1,493 57
Fell "	87 48
Unexpended balance, 1887-8	811 72
Total income from all sources	\$62,006 88

Disbursed as follows:

Expenses of session, including Demonstrators' Salaries . . .	\$24,865 00	
Equipment Associate Professor of Obstetrics	1,000 00	
Contingent Fund, Medical Department	151 41	
Salaries of Professors	35,990 47	
		<u>\$62,006 88</u>

Respectfully submitted,

JAMES TYSON, *Dean.*

UNIVERSITY OF PENNSYLVANIA, July 1, 1889.

REPORT OF THE DEMONSTRATOR OF PATHOLOGY AND MORBID ANATOMY.

PROF. JAMES TYSON, DEAN OF THE MEDICAL FACULTY.

DEAR DOCTOR:—I herewith respectfully submit a report upon the practical teaching and work in the Pathological Department for the session of 1888–9, and some recommendations as to desirable improvements.

Suggestions relating to certain corrections and repairs in the faulty plumbing, and to the completion of some unfinished parts of the Laboratory, and to certain minor defects, are contained in the various parts of this report. I further urge an increase in the yearly appropriation for the Laboratory, in order to meet more nearly the actual expenses of this department.

I have made this report more extensive than any I have submitted heretofore, thinking it appropriate at this time of your withdrawal from the immediate guidance of the Pathological Department to give a complete report and sketch of its development and of the condition to which it has gradually grown under your management. The details of the working of this department of the University are not sufficiently known, because Morbid Anatomy studies and teaching have features that naturally keep them from the public eye and ear, and consequently the perfection of the work in Practical Pathology and the scope it covers are insufficiently known to those in care of the University, and even to the Faculty itself.

The Pathological Department, both as to its didactic and practical parts, compares favorably with every other department of the University, and has contributed largely to its success. It also compares favorably with the Pathological Department of Harvard University, in fact excels it in so far as Morbid Anatomy material is concerned, and the rest of American schools offer instruction of students in systematic Morbid Anatomy demonstrations only on paper.

INVENTORY OF THE PATHOLOGICAL LABORATORY.

The statement below given is correct as to the present total value of the various permanent Laboratory possessions, an itemized account of which may be seen in the Laboratory.

The value of the (about) 600 good Morbid Anatomy specimens which, in good jars now, represent quite a formidable new Pathological Museum, is, of course, not stated.

34 microscopes (Zentmayer's), (each with $\frac{1}{2}$ objective and

B eye-piece; other accessories not being replaced

after the fire), value each \$35, \$1,200 00

Scales, microtomes, air-pump and apparatus and instru-

ments of various kinds, 300 00

Bacteriological apparatus, 200 00

600 museum jars, 200 large and 400 small ones, 500 00

Glass and tin utensils, 100 00

Alcohol and objects of temporary value, 100 00

Furniture (cases, tables, shelves and special fixtures), 1,000 00

Total value, \$3,400 00

REMARK.—The fire insurance recovered last year by the University for damages to the Pathological Laboratory property (\$2,748) included \$400 for books, microscopical chests and specimens, diagrams, etc., that were my own and partially Prof. Tyson's private property. The insurance was allowed because these objects had been in use for Laboratory instruction. Instead of replacing them, however, we spent these \$400 for museum jars, furniture and apparatus more urgently needed in the Laboratory.

Will the University be so generous now as to allow at least \$200 to replace the books of reference and diagrams lost, and which are much needed?

The following comprises the outline of the official work consigned to me in the Pathological Department:

A.—WITH STUDENTS OF SECOND YEAR.

I. *Instruction in Pathological Histology and the Microscopy of Urine.* Laboratory work, seven hours per week throughout the session.

B.—WITH STUDENTS OF THIRD YEAR.

Instruction in Practical Gross Morbid Anatomy, Autopsies and Bacteriology, as follows:

II. *Demonstrations in Morbid Anatomy*.—Two hours per week (Tuesdays, 10 to 12), throughout the session, the class being divided into two sections, each attending one hour per week.

III. *Autopsies*.—This instruction is subdivided into, first: "Autopsy Demonstrations" to the whole class (Thursdays, 9 A.M.), one hour per week throughout session. Second: "Autopsy Exercises" to small sections of two or three students daily throughout the year, each student executing himself one or more complete autopsies.

IV. *Practical Bacteriology*.—One hour per week throughout session (Fridays, 9 A.M.). The whole third year class attend six lectures in Bacteriology, and subsequently each section of twelve students receives six lessons in Laboratory work.

C.—PRIVATE LABORATORY COURSES.

The following are private classes for which a fee of \$10 to \$15 is received, but which fee is waived in many instances in the cases of our own students and graduates who do original research; students attend either one or all of the following three courses for one fee:

I. *Instruction in the Technique of Microscopy and Pathology*.—Attended chiefly by students who enter the second or third year studies of the University from other schools, or by graduates in Pharmacy or Dentistry entering second year.

II. *Instruction in Pathological Histology, Examination of Urine, Clinical Microscopy and Bacteriology*.—Attended by graduates in Medicine, chiefly of other schools.

III. *Instruction to Advanced Students in the Details of Pathological Technique, Medico-Legal Microscopy and Autopsies and Guidance in Original Research*.—Attended largely by our own students. No fee is charged for this course. Time for work is in the afternoons or evenings, three times weekly during the winter session, and every morning during the spring session.

The Laboratory is open during the entire day from September 15th to June 15th. Students who conduct original research have been permitted to work in the Laboratory during the summer months.

RECOMMENDATIONS REGARDING THE COMPLETION OF THE LABORATORY CONSTRUCTION AND CERTAIN REPAIRS.

I may omit minor defects or needs that can be met with from the annual Laboratory appropriation, but the following wants cannot, and I pray for these in particular:

1. The replacement of the destroyed diagrams and books of refer-

ence in the Laboratory, which are much missed by the students and myself (would cost about \$200).

2. Construction of Autopsy table; and,

3. Completion of the Autopsy Amphitheatre in the Laboratory which cannot be used in its present unfinished state; cost for both, about \$200 to \$300.

4. Reconstruction of the elevator, which has always been a great source of annoyance and delays, and requiring mainly a new rope—best, possibly, one of wire.

5. Repairs and modification of the faulty and imperfect water and waste-pipe plumbing, which is not of an expensive nature, and is imperatively necessary.

6. The transference of all Morbid Anatomy material of the University Hospital to the care of the Pathological Department.

EXAMINATIONS OF STUDENTS IN PRACTICAL PATHOLOGY.

The best idea of the various parts and the scope of the teaching of Practical Pathology and Morbid Anatomy may be formed from the nature of the questions asked the candidate for graduation at the final examination. The result of this examination is reported to the Professor of Pathology, who takes into consideration the mark reported when examining him didactically or when marking him finally.

Below is given such an instance and about the average number of questions put to one man. These questions, as is seen, refer, outside of a few that relate to Bacteriology and Autopsies, exclusively to specimens under the microscopes before the student, or to specimens standing or spread before him, or which he examines in my presence upon the Laboratory table.

One hour's time is allowed each student to examine the specimens before him before he is expected to answer all the questions or, rather, to label the specimens. On the average, within half an hour a moderately good student labels and describes orally all the specimens before him; the majority of the students answer very satisfactorily, some perfectly, a few only poorly. The specimens are, of course, changed all the time, so that no two students see the same specimens on any one examination day. Two students are admitted at one time for examination in different parts of the Laboratory. I append some

ILLUSTRATIVE QUESTIONS.

1. Six or more slides, microscopical preparations, of various tumors or diseased organs are given the student to diagnose and to describe under the microscope.

2. Question: Do you see or not under this microscope tubercle bacilli stained by the Violet-Vesuvian Method? And if you do, point out what other forms of bacteria you see in the same specimen.

3. Describe the procedure and all its steps of a bacteriological examination if called upon to determine a case of suspected Anthrax Disease.

4. How do you make a complete bacteriological examination of drinking water, and what are the sources of error?

5. Point out and describe the different forms of fungi and bacteria common in the air that have grown upon these potatoes.

6. Point out, in this collection of kidneys, specimens representing each of the four forms of Bright's Disease, and

7. Select among these bottles of urine the specimens that may correspond to each, by naked eye appearance; also,

8. Indicate the specimens of tube-casts under these four microscopes that correspond to each of those four forms of Bright's Disease.

9. Select from among this lot of kidneys a specimen of each:

a. Tubercular kidney.

b. Sarcoma of kidney. Is this a primary or secondary affection? Describe the difference.

c. Cystic kidney. Does this particular specimen represent an acquired or congenital affection? Describe appearance of each and differences between them.

10. Select specimens that appear to contain separately uric acid, phosphates, oxalates, mucus, pus, blood; and

11. Under which of these microscopes do you see each of the various substances before named, and where do you see spores of fungi, oil globules and crystals of urate of ammonium which may simulate blood corpuscles?

12. Under what circumstances may you have albumin without tube-casts in urine?

13. Point out among these lungs, by naked eye appearances:

Croupous pneumonia.

Embolie pneumonia.

Acute phthisis.

Chronic phthisis.

Broncho-pneumonia.

Miliary tuberculosis.

Describe anatomical differences between them.

14. Select from this series of hearts :

- a. Simple acute endocarditis.
- b. Chronic endocarditis, and
- c. Mycotic “

15. What else is abnormal in these specimens?

What was the cause of rupture of this heart?

16. Dissect this heart properly.

What is the normal average weight of an adult's heart?

17. What is the name and causation of each of these various forms of hemorrhages?

(Some ecchymosis, infarcts and massive hemorrhage in organs being shown to student.)

18. Is this a specimen of primary or secondary cancer?

19. Point out among this lot of breast tumors, one each, the following: adenoma; cancer; sarcoma, round-celled; sarcoma, spindle-celled; fibroma; lipoma; Paget's Disease and a galactocoele. Which would give metastasis?

20. What five forms of tumors may these polypi represent?

21. What tumors may these ulcerating new growths be? Prognosis.

22. Which of these skulls presents, presumably, a fracture from a fall, and which one from a blow?

23. What forms of poisoning does the appearance of these various stomachs suggest?

24. Which of these two sets of specimens is arsenical poisoning, and which came probably from a case of cholera morbus?

25. Are this uterus and foetus from a natural or a criminal abortion?

26. How does an extra uterine pregnancy kill? And how soon after the sac ruptures?

27. What is an “over-layed” child?

28. In what modes of death does the blood remain fluid in the body? In which do we have thrombosis and heart clots?

29. What is the surest sign of death next to putrefaction?

30. What mode of death is indicated by anæmia of brain?

31. Which of these cerebral hemorrhages is traumatic? And which shows natural apoplexy, and from what cause?

What appearance and kind of hemorrhage would positively exclude murder in the absence of a history of the case?

32. When will rigor mortis ensue rapidly, and when will it fail to set in?

EXTRA OR VOLUNTEER COURSES IN MICROSCOPY FOR THIRD YEAR STUDENTS.

This work in the Pathological Laboratory is not upon the regular University roster, and not compulsory, yet it is one of the most popular and best attended courses in the University. It consists of a series of practical exercises in Microscopical Diagnosis of tumors and diseased organs, etc., the course being open from 2½ to 3½ p.m. daily, to all third year students during the entire year, *free of charge*. I instituted this course ten years ago at the request of students, to enable them to go once more over the second year Microscopical work as well as that of third year, prior to the final examination. The third year class is divided into four sections, each attending the exercises one month daily, one hour as stated.

Many students do not own microscopes and come principally during those hours to consult about autopsies or to examine sputum, urine specimens, etc., for themselves. A number of students exercise in Photography and Photo-micrography. The excellent photo-microscope in the Laboratory has been loaned by Dr. Carl Seiler, and some good work has been done in this direction lately.

PRIVATE LABORATORY CLASSES.

These are the courses in General and Clinical Microscopy and Pathological Histology, etc., referred to on page 92 of this report. They originally were instituted by Professor Tyson nearly twenty years ago; they have attracted students in Microscopy and Pathology from all over the country, and continue to do so. Since 1878 they have been conducted by myself.

These courses have the most intimate relation with the development of the Pathological Department of the University, and were in fact its cradle when Pathology was introduced, in 1877, as a compulsory branch of the Medical course.

To the courses in Pathological Histology for second year students that had been made compulsory at once were added for third year students, Demonstrations in Gross Morbid Anatomy in 1881, and practical instruction in Autopsies in 1882. Bacteriology was introduced in 1883, though not made compulsory until 1888. The examination of students in Practical Pathology by the Demonstrator is in force since 1885. Ample opportunities have also been afforded to the students, during the last six years, in acquiring knowledge in Medico-Legal studies, as a great amount of Medico-Legal material from murder trials, etc., is sent to me and is demonstrated to all those who interest themselves in it.

Private classes in Pathological Laboratory work nevertheless have to be continued. They are for the benefit of, *First*, post-graduates, many of whom come to the University for Pathological studies exclusively. *Second*, for students who enter the University to advanced standing and who have not had laboratory facilities corresponding to those of our second year; and *Third*, for those of our own and other students who wish more instruction in Pathology than they receive in the regular course, or who prepare themselves as teachers in Microscopy or Pathology.

A considerable amount of original work has also been done in this Department of the University in the course of years. As far as original research, executed by the students themselves, is concerned, the work in the Pathological Department exceeds in quantity the original work of the students of all the other Laboratories or Departments combined, as is shown by the number of prizes awarded to graduates at the Annual Commencements of the last decade.

The following are the names of the prize essayists of the years 1879 to 1889 as given by our yearly official University Catalogues. The titles of their essays I give abridged:

PRIZE ESSAYS IN PATHOLOGY FOR THE LAST DECADE.

1879.	Wm. G. Davis	Liver, Structure of.
1880.	Geo. H. Rose	Uriniferous Tubules.
	John Whitehead.	Marrow of Bones.
	Alex. Randall	Inflammation.
1881.	J. P. Crozer Griffith	Scrotum, Structure.
	Geo. E. de Schweinitz	Neuroma.
	Orlando C. Robinson	Tuberculosis.
	Eugene H. Dickenshied	Atheroma.
1882.	D. King Gotwalt	Kidneys, Structure.
	Henry Wile	Secondary Tumors.
	Geo. T. Robinson	Retina.
	J. W. Blackburn	Tumors.
1883.	Geo. Junkin	Iris.
	Wm. H. Mercur.	Tuberculosis.
	Edward Martin	Heart Muscle.
1884.	Geo. A. Bodamer	Actinomy Cosis.
	W. Frank Haehnlen	Bacteria.
1885.	Frank S. Sutton	Arsenical Poisoning.
	F. E. E. Emery	Nephritis.
1886.	Allen J. Smith	Sewage Bacteria.
	Elijah J. Kerlin.	Fungi in Air.

1886. Geo. W. Marshall Tumors.
 1887. Wm. C. Fownes Tumors.
 1888. John L. Hatch Cadaveric Poisoning.
 C. W. Sharpless Tumors.
 1889. R. Gerlach Uterus, Structure of.

In the award of "Distinguished Merit" by the prize essay committee of the Faculty the work of the Pathological Laboratory is always conspicuous.

I do not think that the abolition of the compulsory graduation thesis has proved itself a successful measure, for reasons stated in a former report.

NEW OFFERS OF AWARDS OF PRIZES FOR THE BEST STUDIES IN PRACTICAL PATHOLOGY.

The appreciation of the profession of the advances that are being made by the University in the teaching of Pathology finds expression in the fact that two of the Alumni offer yearly prizes: A prize of \$100 for the best examination in Practical Morbid Anatomy by Dr. Frank Hinkle, of Columbia, and a prize of \$50 for the best essay in Practical Morbid Anatomy or Pathological Histology, illustrated by specimens and drawings.

Respectfully,

HENRY F. FORMAD,

Demonstrator.

APPENDIX IX.

REPORT OF THE LAW DEPARTMENT.

SIR:—I have the honor to submit my report of the operations of the Department of Law for the scholastic year 1888–9.

The session of 1888–9 was opened on October 1, 1888, by an address delivered by Mr. Justice Miller, of the Supreme Court of the United States, in the Chapel of the University.

THE FACULTY.

Instruction in the subjects named has been given during the year by the following Professors:

Professor Hare, in Constitutional Law.

Professor Parsons, in Marriage and Divorce and Decedents' Estates.

Professor Bispham, in the Principles of Equity, and in Equity Pleading and Practice.

Professor Patterson, in Real Estate and Conveyancing.

Professor Biddle, in Pleading at Law.

Professor Hare having, to the great regret of his colleagues, resigned his professorship, the chairs in the Faculty have been reconstituted as follows :

(1) A professorship of Commercial Law, Contracts and Decedent Estates ; incumbent, Professor Parsons.

(2) A professorship of Equity Jurisprudence, including the Principles of and Pleading and Practice in Equity and Orphans Court Practice ; incumbent, Professor Bispham.

(3) A professorship of Constitutional Law, including the History and Interpretation of the Constitution and the Relations between the United States and the States, and the Law of Real Property and Conveyancing ; incumbent, Professor Patterson.

(4) A professorship of the Law of Torts, Evidence and Practice at Law ; incumbent, Professor Biddle.

(5) A professorship of the Law of Contracts and Corporations and Pleading at Law ; Professor-elect, Samuel S. Hollingsworth.

(6) A professorship of Criminal Law ; Professor-elect, George S. Graham.

Three Fellowships have also been created, the incumbents to be selected from the Graduating Class, each to hold office for three years and to perform, under the direction of the Dean of the Faculty, such duties of instruction as may be assigned to them ; Fellow-elect, George Wharton Pepper.

During the year lectures have been given as follows :

First Term.—Professor Parsons, two hours a week ; Professor Biddle, three hours a week ; Professor Hare, one hour a week ; Professor Bispham, one hour a week ; Professor Patterson, four hours a week.

Second Term.—Professor Parsons, two hours a week ; Professor Bispham, two hours a week ; Professor Biddle, four hours a week ; Professor Hare, one hour a week ; Professor Patterson, five hours a week.

Copies of the questions for the written examinations of this year are herewith submitted.

THE STUDENTS.

During the year two classes have been in attendance.

The Senior Class had fifty-six members, six of whom failed in their final examinations, and fifty of whom were recommended for a degree and were graduated at the Annual Commencement.

The Junior Class had eighty-five members. There were five free scholarships, one upon the foundation of the City of Philadelphia, and four admitted by the Faculty. Three members were matriculated, but did not pay term fees nor attend the lectures. Eighteen paid for the first term and left before its end. Two paid for both terms and left without examination. Sixty-one attended both terms, and fifty-eight presented themselves for examination. Thirteen were conditioned with one professor. Four were conditioned with two professors and four with three professors, and reduced to the next class. Three attended the lectures of both terms, but did not appear for examination and were reduced to the next class, and thirty-seven have passed a satisfactory examination and been admitted to the second year's class.

PRIZES AND HONORS.

The following is a list of the prizes and honors awarded during the year :

The Sharswood Prize for the best essay by a member of the Graduating Class to George Wharton Pepper, for his essay entitled "The border land of Federal and State decisions."

The Meredith Prize for the second best essay by a member of the Graduating Class to Samuel Carman Kintzing, for his essay entitled "The conflict of laws relating to negotiable paper taken as collateral security for antecedent indebtedness."

Honorable mention for essays of more than ordinary merit: Francis Fisher Kane, for his essay entitled "The recovery of money paid under protest."

Joseph Snowden Rhoads, for his essay entitled "The law of equitable conversion."

Joseph Rosenbaum Fahy, for his essay entitled "The doctrine of consideration as applied to bills of exchange and promissory notes."

Solomon Stanger Iszard, for his essay entitled "The criterion of fellow-service."

Christopher Magee, Jr., for his essay entitled "The liability of railroads for baggage of passengers."

Joseph Siegmund Levin, for his essay entitled "Pooling Trusts."

Edward Joseph Coll, for his essay entitled "The law of Pennsylvania."

nia on the responsibility of common carriers as restricted and qualified by notice and special contract."

The P. Pemberton Morris Prize for the best examination by a member of the Graduating Class in Evidence, Pleading and Practice at Law and in Equity to George Wharton Pepper, with honorable mention of Joseph Siegmund Levin.

The Faculty Prize for the best examination by a member of a Junior Class to Charles Cooper Townsend, with honorable mention of Russell Duane and George Stuart Patterson.

HONORS OF THE GRADUATING CLASS.

Arthur Straus Arnold, William Michael Byrne, Horace Lincoln Cheyney, Francis Fisher Kane, Frederick Jacob Knaus, Alexander Durbin Lauer, Joseph Siegmund Levin, Harvey Klapp Newitt, Jr., George Wharton Pepper.

HONORS OF THE JUNIOR CLASS.

Russell Duane, George Stuart Patterson, Charles Cooper Townsend. Mr. George Wharton Pepper of the Graduating Class was elected a "Fellow" of the Department of Law.

THE REMOVAL TO BROAD STREET.

For many years past the Faculty had been impressed with the disadvantages necessarily incident to the location of the Law School in the University buildings in West Philadelphia, at an inconvenient distance from the Courts and the offices of the professors and of the private preceptors of the students. It was therefore determined to move the school to some suitable location in the business centre of the city and in convenient proximity to the Courts and the law offices, and the Trustees authorized the Faculty to lease from the Girard Life Insurance, Annuity and Trust Company the sixth floor of their new building at the northeast corner of Broad and Chestnut Streets, at a rental averaging \$3,300 per annum during the demised term, and payable upon a sliding scale beginning at the rent of \$2,200 per annum. The space not needed by the school will be rented, it is to be hoped, at such rates as will materially reduce the rental to be paid by the Department. The space reserved will afford one large lecture room, one smaller lecture room and a well-lighted library hall, with ample space for 12,000 volumes and the accommodation of 250 students.

The Trustees have agreed to advance, from the funds of the University, \$2,500 to fit up and furnish the lecture rooms and library hall.

TEMPORARY LOCATION OF THE SCHOOL DURING 1888-9.

During the last year the Department of Law has, by the courtesy of the Hon. Samuel C. Perkins, Chairman of the Public Buildings Commission, and of the Hon. Edwin M. Paxson, Chief Justice of Pennsylvania, been permitted to use the Supreme Court room and the License Court room as lecture rooms, and the Library has been placed in a room in the Public Buildings where the professors and students have had full opportunity of using it.

THE GEORGE BIDDLE MEMORIAL LIBRARY.

Until the current year the Department has not had a library devoted to the use of the school, and its students have been forced to consult authorities in the library of the Law Association and in such private libraries as were accessible to some favored students; but now that deficiency has been amply supplied. The family of the late George Biddle have presented to the Department a valuable and well-selected library of reports, and material additions have since been made from other sources.

The library as presented by the family of Mr. Biddle consisted of:

	Text.	U. S. and State.	Reports, Foreign.
English, Irish and Scotch Reports			1,388 vols.
Federal and State Reports		3,599 vols.	
Books added by Faculty		129 "	7 "
Received from University	40	133 "	15 "
Given by Mr. Justice Strong	34		
" " Professor Bispham	2		
	<hr/> 76	<hr/> 3,861	<hr/> 1,410 "
Grand Total,			<hr/> 5,347 "

The Department is also a residuary legatee under the will of the late Professor Morris, and ultimately his library, amounting to some 1,500 volumes, will be placed on the shelves of the Department.

A book catalogue has been completed during the year, and a card catalogue will shortly be completed.

ADDITION TO RULE VI OF THE SUPREME COURT.

Graduates of the Law Department of the University of Pennsylvania who have passed the preliminary examination before the Board of Examiners of Philadelphia County, and an examination upon Latin, and who have taken the full course of three years and received the diploma and degree of Bachelor of Laws may be admitted to practice in this Court upon the expiration of three full years from the date of their preliminary examination, upon filing with the Prothonotary a certificate of the Dean of the Law Department stating these facts, and upon exhibiting their diploma, together with a certificate of good character, as in other cases. March 18, 1839.

It is ordered that the above shall be in addition to Rule VI of this Court.

PER CURIAM.

True copy from the Record.

(Signed), CHAS. S. GREENE,

(Seal)

Prothonotary.

The past year's experience has conclusively shown the advantages of the Law Library in the efficient conduct of the work of the school.

I avail myself of this opportunity to express my sense of the faithful and intelligent service that has been rendered by the late Librarian, Lightner Witmer, Esq.

The Library account is as follows :

1887-8.	To credit set aside out of the receipts of the Department,	\$1,300 00
1888-9.	" credit set aside out of the receipts of the Department,	1,300 00
		<hr/> \$2,600 00
1888-9. Nov. 20.	By insurance on Library, . .	\$300 00
Dec. 6.	" book plates,	6 00
"	" janitor's fees,	20 00
"	" Librarian's salary, Dec., .	33 33
"	" Johnson & Co., moving books, .	183 95
"	" " " new books,	526 34
Jan. 31.	" Librarian's salary, Jan'y, .	33 33
Feb. 28.	" do. Feb'y,	33 34
Mch. 31.	" do. March,	33 33
Apl. 30.	" do. April,	33 34
June 1.	" do. May,	33 34
" 14.	" Library stationery,	26 26
" 15.	" balance to credit of Library account,	1,337 44
		<hr/> \$2,600 00

RECEIPTS AND EXPENDITURES.

The following balance sheets show the receipts and expenditures during the past year and the preceding year :

1887-8.	DR.	
To balance from 1886-7 account,		\$412 89
" fees 1887-8,		11,815 00
" fees 1888-9, 1889-90,		200 00
" cash from E. S. Miller,		80 00
" interest on deposits,		36 03
		<hr/> \$12,543 92

CR.

By 8 per cent. paid University on account 1886-7, . . .	\$377 60
“ fees of 1886-7 distributed :	
Mr. Mitchell,	\$10 09
Prof. Bispham,	10 08
Prof. Parsons,	10 08
Prof. Hare,	5 04
	<hr/> 35 29
“ advertising account,	328 85
“ sundry expenses,	376 00
“ 8 per cent. paid University on account 1887-8, . . .	945 20
“ fees paid Faculty 1887-8 :	
Prof. Parsons,	\$2,565 99
“ Bispham,	2,565 99
“ Hare,	1,283 00
“ Patterson,	1,283 00
“ Biddle,	1,283 00
	<hr/> 8,980 98
“ balance (including Library Fund \$1,300, and \$200 fees of 1888-9 and 1889-90), . . .	1,500 00
	<hr/> \$12,543 92

1888-9.

DR.

To balance from 1887-8, including \$1300 to credit of Library Fund and \$50 fees paid by Mr. Edward Stern in advance for Oct. Term, 1888, \$50 for Feb. Term, 1889, and \$100 for 1889-90, . . .	\$1,500 00
“ matriculation fees of non-attending students, . . .	30 00
“ fees Oct. Term 1888-9 (not including Mr. Stern's payment in advance),	6,840 00
“ fees Feb. Term 1888-9 (not including Mr. Stern's payment in advance)	5,605 00
“ proceeds of sale of Judge Miller's lecture, . . .	11 75
“ interest on deposits,	51 70
	<hr/>
Total.	\$14,038 45

CR.

By 8 per cent. of gross fees paid to the University, . . .	\$1,002 00
“ return to Mr. Stern of fees paid in advance for Feb. Term 1889, and 1889-90,	150 00
“ expenditures for opening of session and printing Judge Miller's lecture,	179 25

By advertising disbursements,	\$43 25
" Salary of Dean's clerk,	150 01
" Dean's disbursements for sundry expenses, . . .	85 89
" payment to architects on account of 6th and Locust Streets,	50 00
" Faculty Prize,	50 00
" Moot Court briefs,	62 50
" disbursements for examination and graduation, .	172 09
" disbursements for Library account, including books, salary of Librarian and incidentals,	1,262 56
" net fees of 1888-9 distributed :	
Prof. Hare,	\$1,186 69
" Parsons,	2,373 36
" Bispham,	1,186 69
" Patterson,	2,373 36
" Biddle,	2,373 36
	<hr/> 9,493 46
" balance to account of 1889-90 to credit of Library Fund	1,337 44
	<hr/>
Total.	\$14,038 45

On May 7th, 1889, the Trustees adopted the following system for the regulation of the financial relations between the University and the Department of Law:

I. From the gross receipts of the Law Department there shall be paid : for

1st. Maintenance of the Law Library, twelve per cent.

2d. To the Trustees of the University, eight per cent.

3d. Current general expenses of the Law Department, including expenses of rental ; salary of the Dean, five hundred dollars ; salaries of Fellows, not exceeding, say, nine hundred dollars for three Fellows ; advertising, postage, stationery and diplomas, five hundred dollars ; and also the costs of any special contracts granted from year to year.

II. From the remainder of the gross receipts as much as is necessary to pay each of the Faculty (except such as may be elected under special contract) up to fifteen hundred dollars per annum, provided the remainder be sufficient therefor.

III. As to surplus :

All balances remaining after the above disbursements to a point at which each professor not under contract would receive two thousand

dollars to be distributed into three parts which shall be distributed as follows :

1st. One-third to be equally divided among the professors not having special contracts until the total sum received by each shall reach two thousand dollars.

2d. One-third to the Law Department for betterments or endowments.

3d. One-third to the Trustees of the University.

IV. As to extra surplus :

Any balance remaining after the above second distribution shall be distributed as follows :

1st. One-sixth to the Faculty, to be equally divided among the professors not having special contracts.

2d. Three-sixths to the Law Department for betterments or endowments.

3d. Two-sixths to the Trustees of the University.

V. Each professor upon notification of his election shall receive simultaneously a memorandum of these financial relations of the Department to the University, with the understanding that the basis may be changed by the Trustees from time to time as they may deem proper.

VI. The Treasurer of the Law Faculty is instructed to deposit the funds of the Department with the Treasurer of the University.

VII. The Trustees will loan to the Law Faculty a sum not exceeding twenty-five hundred dollars for fitting up the rooms of the Department at five per cent. interest, the interest to be reckoned among the fixed charges, and the principal to be repaid out of item 2 of the first surplus as stated above, and in such installments as may be convenient to the Law Faculty.

At the same meeting of the Trustees it was also "*Resolved*, that in adopting the foregoing scheme of financial relations between the University and its Department of Law, the Trustees make this minute of their appreciation of the liberal and unselfish spirit which has been evinced by the members of the Law Faculty in all the conferences in which the details of this scheme were agreed upon, and their confidence that it will be ultimately found to be equally advantageous to the University and the Department."

GENERAL REMARKS.

I submit herewith a copy of the Prospectus of the Department just issued for the year 1889-90.

I have only to add that the Department will in September next

take possession of its new quarters, and that the prospects of the school are certainly as bright as ever before. I have the honor to be with sincere respect,

Your obedient servant,

C. STUART PATTERSON,

To the Provost.

Dean.

APPENDIX X.

DEPARTMENT OF DENTISTRY.

PHILADELPHIA, June 24th, 1889.

WM. PEPPER, M.D., LL.D., PROVOST OF THE UNIVERSITY OF PENNSYLVANIA.

DEAR SIR:—As Secretary I have the honor to report to you the condition of the Dental Department during the years 1887-8 and 1888-9.

The number of students matriculated, 1887-8	123
Of these there were students of the first year	57
“ “ “ “ “ “ “ “ second year	65
Special student	1
	— 123
Number of new matriculates, including those admitted to advanced standing 1887-8	75
Students matriculated in 1888-9	127
Of these there were students of the first year	63
“ “ “ “ “ “ “ “ second year	63
Special student	1
	— 127
Number of new matriculates, including those admitted to advanced standing 1888-9	77

SUMMARY 1887-8 AND 1888-9.

Students in full attendance 1887-8 and 1888-9	248
Special students	2
	—
Total two years	250
	1887-8. 1888-9.
Of these there were admitted upon presentation of certificates	42 45
Admitted upon examination	14 14
“ to advanced standing	14 11

Those admitted to advanced standing presented certificates and diplomas from the following institutions:

	1887-8.	1888-9.
Pennsylvania College of Dental Surgery	3	1
Ohio College of Dental Surgery	3	1
Louisville Dental College	1	0
Dental Hospital, London, Eng.	1	0
Halifax Medical College	1	0
New York Dental College	1	0
Dental Department, Medical College, Rio Janeiro, Brazil	1	2
University of Leipzig	1	0
“ “ Munich	1	0
“ “ Michigan	1	2
“ “ Pennsylvania, Medical Department	0	2
“ “ Berlin, Germany	0	1
Boston Dental College	0	1
University of Geneva, Switzerland	0	1
	<hr/> 14	<hr/> 11

The countries represented in the Department are as follows:

	1887-8.	1888-9.
Middle States	60	67
New England States	18	11
Western States	13	12
Southern “	4	5
Pacific “	5	4
District of Columbia	0	1
Dominion of Canada	3	8
Australia	1	1
West Indies	8	11
South America	1	2
Central “	1	2
England	2	0
Germany	4	1
Russia	1	0
Spain	1	0
France	0	1
Switzerland	0	1
Turkey	1	0
	<hr/> 123	<hr/> 127

SUMMARY.

	1887-8.	1888-9.
United States and Canada	103	108
Foreign countries	20	19
	<u>123</u>	<u>127</u>

The amount of work performed in the operative and mechanical branches has been as follows:

Operative.	1887-8.	1888-9.
Number of operations	14,616	16,778
Mechanical.		
Number of operations	687	765
Total	<u>15,303</u>	<u>17,543</u>

Amount of gold used for stoppings, exclusive of that used in mechanical work, 1887-8, 52 ounces (4 lbs. 4 oz).

Amount of gold used for stoppings, exclusive of that used in mechanical work, 1888-9, 64 ounces (5 lbs. 4 oz).

Number of patients, 1887-8	5,646
" " " 1888-9	6,209

These operations are performed exclusively by students, and involve an expenditure of time and labor rarely understood by those not familiar with dental operations. The practical training is mainly upon patients, a preliminary period being given to instruction out of the mouth. While this mode of teaching has its objections, it has been found impossible to cultivate manual dexterity by any other process. The result has the practical value that, at the expiration of the term of pupilage, the graduate is fully prepared to meet all ordinary emergencies that may occur to the living subject; and, this being now so generally understood, confidence is at once inspired and practice more rapidly secured. The work, year by year, grows more and more difficult, and involves a greatly increased amount of time in the treatment and finishing of cases, and, of necessity, more accurate knowledge of various collateral branches. The use of gold and platinum in the insertion of crown and bridge-work and continuous gum sets has grown rapidly, requiring increased skill in manipulation, as well as a necessity for trained specialists in these directions. It has been found necessary, therefore, from time to time, to add to the list of Demonstrators, and the effort has been to do this from our own graduates, and thus far with success. This rapid advance of the practical side of Dentistry has required continued additions to the facilities, and these have been met as occasion required.

COURSE OF INSTRUCTION, SESSIONS 1887-8 AND 1888-9.

Length of session, seven months—from October 1st to May 1st.

Lectures on Mechanical Dentistry	2	hours each week.
“ “ Operative “	2	“ “ “
“ “ Dental Pathol., Ther. and Mat. Med.	2	“ “ “
“ “ Anatomy	3	“ “ “
“ “ Chemistry	2	“ “ “
“ “ Physiology	3	“ “ “
Instruction in General and Special Histology	2	“ daily.
Chemical Laboratory, first year students	4	“ each week.
Mechanical Laboratory, under care of Demon- strators	24	“ “ “
Dental Infirmary, under care of Demonstrators	24	“ “ “

The Infirmary and Mechanical Laboratory are open daily from 9 A.M. to 4 P.M. for practical work.

During the past year Histology, both General and Special, has been added to the curriculum, and Prof. George A. Piersol has been selected as the instructor in this important branch.

The amount of labor, mental and physical, required of our students has been a difficulty in adding any more to the requirements, and until the Department can have the time extended to three years, further increase would neither be possible nor profitable.

CHANGES MADE IN THE DEMONSTRATORS, 1887-8.

Additional Appointments to the Staff.

Joseph W. White, D.D.S., Assistant Demonstrator of Operative Dentistry.

Ambler Tees, Jr., D.D.S., Assistant Demonstrator of Mechanical Dentistry and Demonstrator of Continuous Gum-work.

Milton Powell, D.D.S., Assistant Demonstrator of Operative Dentistry.

R. Hamil D. Swing, D.D.S., Assistant Demonstrator of Mechanical Dentistry.

Frederick W. Amend, D.D.S., Assistant Demonstrator of Mechanical Dentistry.

1888-9.

Milton N. Keim, Jr., D.D.S., Assistant Demonstrator of Mechanical Dentistry.

Horace McCanna, D.D.S., Assistant Demonstrator of Mechanical Dentistry.

J. Edward Dunwood, D.D.S., Assistant Demonstrator of Operative Dentistry.

E. C. Kirk, D.D.S., Lecturer on Operative Dentistry.

George A. Peirsol, M.D., Histology.

Chas. A. E. Codman, D.D.S., Assistant Demonstrator of Operative Dentistry.

John G. Fuller, D.D.S., Assistant Demonstrator of Mechanical Dentistry.

F. A. Peeso, D.D.S., Demonstrator of Crown and Bridge-work.

J. D. Thomas, D.D.S., Lecturer on Nitrous Oxide.

Resignations.

1887-8.

Louis Jack, D.D.S., Lecturer on Operative Dentistry.

1888-9.

Milton Powell, D.D.S., Assistant Demonstrator of Operative Dentistry.

J. J. Edwards, D.D.S., Demonstrator of Mechanical Dentistry.

The history of this Department has shown the wisdom of its founders and demonstrated beyond fear of criticism that its legitimate work can be carried on most successfully in combination with other branches of scientific effort; and in many respects this can be accomplished more successfully than is possible in independent and isolated schools. The decade just closed since this Department was first organized has been a period of earnest labor, but the Faculty has the assurance that the second period will show better results in a constant and healthy advance of the standard of instruction.

Respectfully submitted,

JAMES TRUMAN,

Secretary.

APPENDIX XI.

VETERINARY HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

BOARD OF MANAGERS:

William Pepper, M.D., LL.D., *ex-officio*.

Joseph E. Gillingham, *President*.

J. Bertram Lippincott, *Secretary and Treasurer*.

S. Weir Mitchell, M.D.,

Archibald Montgomery,

Richard Wood,

Walter R. Furness,

William Hunt, M.D.,

Charlemagne Tower, Jr.,

H. Pratt McKean, Jr.,

William L. Zuill, M.D., D.V.S.

W. W. Dowell, Superintendent of the Hospital.

The Hospital of the Veterinary Department of the University of Pennsylvania is supplied with every possible facility for the best handling and care of sick animals of all kinds.

An ambulance is provided for the conveyance of sick and lame horses. For this service the charges are made according to distance traveled.

Animals are received into the Hospital at any time, day or night.

APPENDIX XII.

DEPARTMENT OF PHILOSOPHY.

TO THE PROVOST OF THE UNIVERSITY.

SIR:—I have the honor of submitting the following report of the state of the Department of Philosophy from the first of October, 1887, to the first of January, 1890 :

The Department of Philosophy, organized in 1884, for the purpose of affording advanced instruction in the various branches of Literature and Science, was reorganized in 1889, and put upon its present basis. Its officers are a Dean, a Secretary and an Executive Committee of five members. All ordinary business is transacted by the Dean and the Executive Committee, and a report made to the Faculty at its yearly meeting on the third Saturday in May. All perplexing or doubtful cases are referred to the Faculty.

The students are either *matriculates* (candidates for the degree of Doctor of Philosophy) or *special students*. All instruction in each branch of study is open to special students (whether college graduates or not) who in the judgment of the professor in charge of that branch are qualified to profit by the instruction given.

The Degree of Doctor of Philosophy is conferred upon the following conditions :

1. The candidate must be a baccalaureate graduate either in Arts or in Science of an American college whose degrees are accepted by this University as equivalent to its own, or he must satisfy the Executive Committee of the Faculty, by examination or otherwise, that he possesses an equivalent preparation for graduate studies.
2. He must pursue graduate studies for at least two years after taking his Bachelor's degree.
3. He must spend at least one year of this time in residence at this

University. The remainder may be spent in residence at other universities.

4. He must present himself for examination in three of the following subjects, one of which he must designate as his principal or major subject, and the other two as his subordinate or minor subjects. Any subject may be taken either as major or as minor.

1. American Archæology and Languages.
2. American History—Political and Constitutional.
3. Botany.
4. Chemistry—Inorganic.
5. Chemistry—Organic.
6. Comparative Philology and Sanskrit.
7. Experimental Psychology.
8. Germanic Philology and Literature.
9. Greek Language and Literature.
10. History and Development of Legal Institutions.
11. Mathematics.
12. Mineralogy and Geology.
13. Political Economy.
14. Political Science.
15. Philosophy.
16. Physics.
17. Romance Philology and Literature.
18. Semitic Languages and Literature.
19. Zoölogy.

Under favorable circumstances it is possible to obtain the degree after two years' graduate study; but if the subjects selected by the candidate are new to him, or if he does not give up his undivided time to the work of the course, this period is sufficient only in exceptional cases.

Women are admitted to any course for the degree on the same conditions as men.

An idea of the nature and scope of the instruction given to students in this Department may be gathered from the following list of courses offered for the current year 1889-90 :

	Hours per week.
GEORGE F. BARKER, Professor of Physics.	
Instruction in the Physical Laboratory,	4
DANIEL G. BRINTON, Professor of American Archæology and Linguistics.	
1. General Philology of American Languages,	2

2. Special Readings on the Grammatical Structure of the following groups of American tongues :

The Algonquin,	1
The Nahuatl,	1
The Maya,	1
The Kechua,	1

3. Archæology—Methods of Study in Archæology, General outlines of American Archæology, 1

JAMES MCKEEN CATTELL, Professor of Psychology.

1. Advanced Psychology,	2
2. Research in Laboratory.	
3. Seminar,	2

EDWIN S. CRAWLEY, Assistant Professor of Mathematics.

1. Advanced Calculus, including Elliptic Functions,	2
2. Quaternions,	2

CHARLES S. DOLLEY, Professor of General Biology.

1. General Biology ; Laboratory Work,* with Supervision,	8
2. Invertebrate Morphology, Laboratory Work, with Supervision,	4

MORTON W. EASTON, Professor of Comparative Philology.

1. Sanskrit Grammar and Readings,	2
2. Çakuntala and the Veda,	2
3. Linguistics and Comparative Philology of the Indo-European Languages, with special reference to Phonetics. Hours undetermined.	
4. Lectures on Phonetics and the Principles of Comparative Grammar, with special reference to the forms of Greek and Latin. Hours undetermined.	

FISHER, Assistant Professor of Mathematics.

1. Advanced Analytic Geometry, including methods of Abridged Notation, Reciprocal Polars, Anharmonic Properties and Invariants and Covariants,	2
2. Theory of Functions,	2

GEORGE S. FULLERTON, Professor of Intellectual and Moral Philosophy.

History of Ancient Philosophy,	2
Psychology,	1
Seminar,	1

* Students taking work in any of the laboratories are not limited to the hours in which instruction is given, but have the privilege of the laboratories daily, under the general supervision of the Professor in charge.

HERMANN V. HILPRECHT, Professor of Assyrian.

1. Assyrian Grammar, 3
2. Selected Babylonian Texts, 3
3. Cursive Reading of Assyrian Texts, 1
4. Interpretation of Ethiopic Texts, 2

EDMUND J. JAMES, Professor of Political and Social Science.

- Political Science—History and Theories of the State, 2
- Seminar, 1

***MORRIS JASTROW, JR.**, Professor of Arabic.*Hebrew.*

- The Elements of Hebrew Grammar, with practical exercises
and selected readings, 2
- Study of some Historical Text of the Old Testament, 1
- Critical Study of the Book of Jeremiah, Chapters 1–39, 1

Biblical Aramaic.

- Elements of the Grammar, with readings from the Books of
Daniel and Ezra, 1

Arabic.

- Elements of the Grammar, with exercises and readings, 2
- Selected Suras from the Koran, with constant reference to the
Arabic commentators, 2
- The Moallakat Kasidê of Imru'l-Kais, 1

Post-Biblical and Rabbinical Literature.

- The Misnâ to the Talmudic Treatise, Abodâ Zârâ, i.e.,
"Idolatry," 1

Syriac.

- Elements of Syriac Grammar, with selected readings, 1

HORACE JAYNE, Professor of Vetebrate Morphology.

1. *Vetebrate Morphology.*
Lectures and Laboratory Work, during second term, 7
2. *The Osteology of the Mammalia.*
Laboratory Work, 4

GEORGE A. KOENIG, Professor of Mineralogy and Metallurgy.

1. Physiography of Minerals, and Paragenesis, 1
2. Theoretical Crystallography 1
3. Chemical Geology, 1

WILLIAM A. LAMBERTON, Professor of the Greek Language
and Literature.

1. Critical Study of the Greek Historians, 2
2. Critical Study of the Greek Orators, 2

* In the absence of Prof. Peters on the University of Pennsylvania expedition to Mesopotamia, Prof. Jastrow announces courses in Hebrew also.

JOHN BACH McMASTER, Professor of American History.	
Constitutional History of the United States from 1789 to 1888,	2
Political History of the United States from 1787 to 1889, .	2
Seminar,	1
JAMES PARSONS, Professor of Law.	
Roman Law and Jurisprudence,	2
SIMON N. PATTEN, Professor of Political Economy.	
Investigation of Economic Methods,	2
Seminar,	1
JOSEPH T. ROTHROCK, Professor of Botany.	
<i>The Classification of Plants.</i>	
Laboratory Work, with Instruction, during second term, .	12
JOHN A. RYDER, Professor of Comparative Embryology.	
1. <i>Comparative Histology.</i>	
Lectures and Laboratory Instruction, during first term,	8
2. <i>Comparative Embryology.</i>	
Lectures and Laboratory Instruction, during second term,	8
SAMUEL P. SADTLER, Professor of Organic and Industrial Chemistry.	
1. Methods of Proximate Analysis of Organic Compounds, .	1
2. Lectures on Synthetic Methods of Organic Chemistry, .	1
3. Lectures on the Industrial Applications of Chemistry,	
Laboratory Work, with Supervision,	2
Seminar,	2
OSWALD SEIDENSTICKER, Professor of German Language and Literature.	
<i>Gothic.</i> —Phonology, Grammar and Readings in Ulfilas.	
EDGAR F. SMITH, Professor of Inorganic Chemistry.	
Chemical Theory,	2
Thermo-Chemistry,	1
Lectures on Special Topics in Pure Inorganic and Analytical Chemistry,	2
Laboratory Work, with Supervision.	
Seminar,	2
ROBERT ELLIS THOMPSON, Professor of History.	
Philosophy of History,	2
FRANCIS N. THORPE, Lecturer on American History.	
Development of Constitutional Government in the United States. I. State. II. National,	2

WILLIAM POWELL WILSON, Professor of the Anatomy and
Physiology of Plants.

1. *Plant Histology.*

Laboratory Work, with Instruction, first term, . . . 6

2. *Plant Physiology.*

Laboratory Work, with Instruction, first term, . . . 6

The growth of the Department may be seen from the following
statement :

Students continued from 1886-7 3

Matriculated 1887-8 4

Total at the close of 1887-8 7

Matriculated 1888-9 8

Withdrew 1888-9 2

Received the Degree 1888-9 1

Total at the close of 1888-9 12

Matriculated 1889-90 22

Withdrew 1889-90 1

Whole number of matriculates January, 1890 . . . 33

These students are from nine universities or colleges. Seventeen
of them pursued their undergraduate studies at the University of
Pennsylvania. The remainder at other institutions. Three of the
students are women.

The choice of major subjects is as follows :

Assyrian, 4

Botany, 3

General History, 1

Geology, 1

Hebrew, 2

Inorganic Chemistry, 3

Jurisprudence, 3

Organic Chemistry, 2

Philosophy, 5

Physics, 2

Political Economy, 3

Political Science, 3

Zoölogy, 1

The choice of minor subjects is as follows : *

American History,	4
Arabic,	2
Assyrian,	1
Botany,	3
Comparative Philology,	1
General History,	2
Hebrew,	4
Inorganic Chemistry,	4
Mathematics,	2
Mineralogy and Geology,	4
Organic Chemistry,	5
Philosophy,	13
Physics,	1
Political Economy,	8
Political Science,	3
Psychology,	6
Romance Philology,	1
Zoölogy,	2

66

Special students in the Department of Philosophy (not candidates for the Degree) are allowed to choose, with the consent of the professors concerned, such courses as may suit their purposes, and are not limited in the number.

In the year 1888-9 there were eighteen special students in the department. Their choice of subjects was as follows :

Arabic,	4
Aramaic,	1
Assyrian,	3
Hebrew,	6
Mathematics,	1
Philosophy,	3
Political Economy,	1
Rabbinical Literature,	1

In 1889-90 there are nine Special students. Their choice is as follows :

Chemistry,	1
Hebrew,	1
Greek,	2
Philosophy,	3
Zoölogy,	1

* It will be remembered that each matriculate chooses two minors.

The matriculates in the Department of Philosophy are largely under the authority of the professor in charge of their major subject. It is our endeavor to train specialists and to cultivate an aptitude for and an interest in original research. The applicant for the degree must prepare a thesis showing a capacity for creditable work, and the thesis must be worthy of publication. With the consent of the Executive Committee the successful candidate may print his thesis as one submitted for the degree. The thesis of Professor Goodspeed, who received his degree in June last, was an excellent piece of original work on "The Force of Gravity at Philadelphia," and will be printed.

It is evident from the list of courses mentioned earlier in this report that the Department offers good facilities for advanced work in a number of subjects. It is also evident that there are serious gaps in the instruction offered. No courses are offered in Latin, English Literature, or English Philology, although there have been many applications for work in these very popular subjects. No courses exclusively for graduates are now offered in General History, although there is a considerable demand for such courses. The provision for Romance Philology is too inadequate. The professors in charge of these subjects at the University are overburdened with undergraduate work, and could not be expected to do more than they are now doing. It is necessary to the success of the graduate work that these gaps be filled.

In closing I cannot too much emphasize the importance of graduate fellowships of the annual value of at least \$250, to be awarded on a competitive basis to graduates of any reputable American college pursuing studies in the Department of Philosophy at the University. Such aids are to be found at several other institutions, and we will labor under a great disadvantage until we have them here. In some respects the University of Pennsylvania has, from its location, peculiar advantages for advanced work. There is no reason why the number of graduate students should not greatly increase and the University take a very active part in the training of specialists in the Sciences and Literature. We need only a little energy to bring this about.

GEORGE STUART FULLERTON,

Dean.

FEBRUARY, 1890.

APPENDIX XIII.

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 In the hands of publishers (with Dr. J. C. Da Costa), a work upon Acquired Insanity, a Hand-book for Students and Practitioners of Medicine.
 Besides publishing articles with above titles, Dr. Smith has illustrated a number of articles published by physicians in Philadelphia.
 Pepper—A Case of Glioma of Right Ano. (Two Drawings.)
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- "Carlsbad Mineral Waters and Sprudel Salts." "

Translated from the German:

- Article of Mr. L. Fleckles, Royal Prussian Medical Counsellor, on Diseases of the Liver, complicated with Chronic Disease of the Stomach, Gastric, Gastro-duodenal or Enteric Catarrh.
- On Diseases of the Liver, complicated with Affections of the Bile Ducts.

- On Diseases of the Liver, complicated with Heart Disease.
 On Diseases of the Liver, complicated with Diabetes Mellitus.
 On Diseases of the Liver, complicated with Bright's Disease.
 Chronic Catarrh of the Stomach. (Same author.)
 Simple Ulcer of the Stomach. (Same author.)
 Article on Diabetes. By Dr. J. Ruff.
 (Edited) "Medical Clippings and New Chemicals," and "Journal of
 Balneology and Medical Clippings."

JAMES TRUMAN, D.D.S.

- Past and Present Teachings in the Use of Gold Foil. Read before
 the Pennsylvania State Society. June, 1889.
 Review. "Das Füllen der Zähne bei Intacter Pulpa." Warnekros.
 Cosmos. 1889.
 "Ueber die Combination von Zinn und Gold als Füllungsmaterial."
 Miller. Abstracts and Translations. Cosmos. 1889.
 Shock in Relation to Dental Operations. Read before the Odonto-
 logical Society of Pennsylvania. International Dental Journal.
 January, 1889.
 The Pulp and Treatment of Pulp Canals. Read at the Anniversary of
 the Odontological Society. December, 1889. International
 Dental Journal. April, 1889.
 Review. Mikroorganismen der Mundhöhle. Miller. Cosmos. Janu-
 ary, 1890.

JAMES TYSON, M.D.

BOOK.

- A Guide to the Practical Examination of Urine. Sixth Edition.
 April, 1888.

PAPERS.

1. Note on Treatment of Typhoid Fever. Medical News. December
 10, 1887.
2. Clinical Lectures on a Case of Aortic Regurgitation with Aneurism
 of the Subclavian Artery. Remarks on Aneurism of the Aorta.
 Medical and Surgical Reporter. August 11, 1888.
3. Clinical Lecture on a case of Epidemic Cerebro-Spinal Meningitis.
 Philadelphia Medical Times. November 15, 1888.
4. Chronic Interstitial Nephritis or Renal Cirrhosis. University
 Medical Magazine, No. 2. November, 1888.
5. On the Relation of Albuminuria to Life Insurance. A Paper read
 September 19, 1888, before the Association of American Physi-

cians at the Third Annual Meeting and published in its Transactions for 1888.

6. The Tubercle Bacillus in its Etiological Relations to Pulmonary Consumption. Remarks before the Academy of Medicine in New York. Medical News. May 11, 1889.
7. Clinical Lecture on Gastric Carcinoma. Medical Times and Register. Philadelphia. June 22, 1889.
8. Methods of Indicating Quantities of Albumen in Urine. University Magazine. September, 1889.
9. Treatment of Acute Pneumonia. Medical and Surgical Reports. September 21, 1889.
10. Induction of Premature Labor in the Bright's Disease of Pregnancy. Journal of the American Medical Association. October 26, 1889.
11. Chronic Endokeritis. University Magazine. November, 1889.
12. Leukhæmia. Clinical Lecture. Medical and Surgical Reports. November 16, 1887.

DE FOREST WILLARD, M.D.

- Spina Bifida. University Medical Magazine. April, 1889.
- Open Urachus. Transactions of the Philadelphia Academy of Surgery. 1888.
- Epithelioma of Penis—Amputation. Philadelphia Medical News. 1888. LII., 383.
- Osteotomy for Anterior Tibial Curves. Transactions of the American Orthopædic Association. 1888. Vol. I.; also, London Medical Recorder, August, 1889, and Philadelphia Medical and Surgical Reporter, January, 1889.
- Spinal Caries. Operative Treatment, Laminectomy, or so-called Trephining of Spine. Transactions of the College of Physicians. 1889.
- Nephrectomy for Gunshot Wound, and for Tuberculous Kidney. Transactions of the American Surgical Association. 1888.
- Foreign Bodies in the Urethra and Bladder—Removal with Evacuator. Transactions of the Philadelphia County Medical Society. 1887.
- "Congenital Malformations of the Penis, Bladder and Urethra." In Keating's American Cyclopedia of Diseases of Children. Vol. III.

HARRY R. WHARTON, M.D.

- Report of a Case of Innominate Aneurism, Distal Ligation of Common Carotid and Subclavian Arteries. Transactions of the College of Physicians. March 2, 1887.

- Seven Cases of Gangrenous Stomatitis, with Remarks. Medical and Surgical Reporter. September 17, 1887.
- Scraping in Cancer of the Stomach. Editorial in Therapeutic Gazette. February, 1887.
- Amputations in Extreme Old Age. University Medical Magazine. October, 1888.
- Disjunction of Upper Epiphysis of the Humerus. University Medical Magazine. January, 1889.
- Report of a Case in which a Brass Shawl-Pin was lodged in the Trachea for Ten Days—Tracheotomy. Medical News. April 13, 1889.
- Acute Abscess of the Tongue. University Medical Magazine. July, 1889.
- Article upon Tracheotomy. Keating's Cyclopedia of Diseases of Children. Vol. II.
- Article upon Congenital Abnormalities of the Intestines, and Malformations, Injuries and Diseases of the Rectum and Anus. Keating's Cyclopedia of Diseases of Children.
- Surgical Memoranda for the University Medical Magazine.

EXHIBITED BEFORE THE PHILADELPHIA PATHOLOGICAL SOCIETY,
WITH REPORTS, THE FOLLOWING SPECIMENS :

- Specimens from Cases of Excision of the Knee-Joint.
- Specimens of Necrosis of the Jaw in Children.
- Prostatic Calculi.
- Glatiniform Arthritis of Knee-Joint.
- Specimens for Case of Re-Excision of Knee-Joint.
- Carcinoma of Breast.
- Fibrous Nasal Polypus.
- Sarcoma of Thigh.
- Excision of Knee-Joint.
- Scirrhus of Breast.
- Sarcoma of Breast.
- Carcinoma of Breast.
- Degenerated Sebaceous Cyst.
- Melanotic Sarcoma of Axilla.
- Tuberculous Testicle.
- Lymphomata of Neck.
- Specimens of Ganglion.
- Loose Cartilages from the Knee-Joint.
- Sarcoma of Tibia.
- Sarcoma of Femur.

Sarcoma of Testicle.

Tuberculous Testicle.

Specimens from a Case of Strangulated Femoral Hernia.

J. WILLIAM WHITE, M.D.

1. A Century of Medicine. Pamphlet. (Reprint.)
2. Antiseptic Nursing. Pamphlet. (Reprint.)
3. Deaths during Ether Inhalations. American Journal of the Medical Sciences. January, 1888.
4. The Relation of the Prostate to Chronic Urethral Discharge. University Medical Magazine. 1888.
5. Two Cases of the Radical Cure of Hernia. Medical News. July 28, 1888.
6. The Use of Living Bone as a Bond of Union after Excision of Bones and Joints. London Lancet. August 18, 1888.
7. Some Glimpses of British Surgery. Medical News. August 25, 1888.
8. Notes from a Series of Clinical Lectures delivered at the Philadelphia Hospital. University Medical Magazine. August, 1888.
9. The Cure of Posterior Tibial Aneurism by Position after the Failure of Digital Compression. University Medical Magazine. September, 1888.
10. A Record of One Term of Service in the Surgical Wards of the German Hospital of Philadelphia. Medical and Surgical Reporter. October 20, 1888.
11. The Abortive Treatment of Syphilis. Medical News. October 27, 1888.
12. The Aseptic Use of Malgaigne's Hooks in Transverse Fracture of the Patella. Medical Record. October 27, 1888.
13. A Note on Two Cases Illustrating some Minor Difficulties in the Diagnosis of Hernias. University Medical Magazine. October, 1888.
14. Two Cases of Rupture of the Urethra, with some Remarks upon the Symptoms and Treatment of that Injury. Boston Medical and Surgical Journal. November 1, 1888.
15. Sur l'Importance chirurgicale des Rétrécissements de Gros Calibre de l'Urethre. Annales des Maladies des Organes Genito-Urinaires. November, 1888.
16. The Surgical Importance of Strictures of Large Calibre. Medical and Surgical Reporter. December 15, 1888.
17. Iodide of Potassium in Syphilis. A Discussion by J. William

- White, M.D., and H. C. Wood, M.D. *Therapeutic Gazette*. December, 1888.
18. Abscess, Carbuncle, Glanders and Kindred Disorders. *Universal Annual of the Medical Sciences*. 1889.
 19. The Aseptic Theory and its Practice. A Lecture delivered to the Graduating Class of the University of Pennsylvania. Reprint from the *University Medical Magazine*. January, 1889.
 20. A Note on the Use of the Bidet in Surgery. *Medical News*. January 12, 1889.
 21. Oophorectomy in Gonorrhœal Salpingitis. *British Medical Journal*. February 9, 1889.
 22. Anæsthetics. A Lecture delivered to the Graduating Class of the University of Pennsylvania. Reprint from the *Medical and Surgical Reporter*. March 9, 1889.
 23. Contributions to the Discussion on the Diagnostic Value of the Tolerance of the Iodides in Syphilis. Between J. William White, M.D., and H. C. Wood, M.D. *Therapeutic Gazette*. March 15, 1889.
 24. The Surgical Aspects of Dr. Wood's Case of Brain Tumor. *University Medical Magazine*. April, 1889.
 25. The Radical Cure of Hernia. A Report of Four Successful Cases, with Remarks. *University Medical Magazine*. June, 1889.
 26. Atony of the Bladder. *University Medical Magazine*. July, 1889.
 27. Two Cases of Spinal Surgery. *The Annals of Surgery*. July, 1889.
 28. The Surgery of the Spine. *The Annals of Surgery*. July, 1889.
 29. An Article on "Physical Education." Supplement to the *Encyclopedia Britannica*.
 30. An Article on "Surgery in America." Supplement to the *Encyclopedia Britannica*.
 31. The Toxic Action of Chromic Acid used as a Cauterant.
 32. The Relation of Subdiaphragmatic Abscesses to the Thoracic Viscera.
 33. Gangrenous Abscess of the Lung; Resection of Ribs; Antiseptic Irrigation. Recovery.
 34. An Enormous Encysted Vesical Calculus successfully removed by the Suprapubic Method, with a brief Review of some Celebrated Cases of the same character.
 35. A Case of Litholopaxy followed by Septicæmia; Suppurative Scapulo-Humeral and Sterno-Clavicular Arthritis; Thyroid, Perineal, Gluteal and other Abscesses.

36. Bone-Grafting in Ununited Fracture.
 37. A Note on the Surgical Treatment of Epilepsy.
 38. Three Additional Cases of the Radical Cure of Hernia.
 39. La Valeur Diagnostique de la Tolerance des Iodides dans la Syphilis, etc. *Annales de Dermatologie et de Syphiligraphie*. Paris.
 40. Modern Methods of Antiseptic Wound Treatment. (Reprint.)
 41. Hanging *vs.* Electricity.
- Abstracts on Splenectomy, Surgery of the Lung and Thorax, Artificial Augmentation of the Growth of Human Bone, Hepatic Surgery, etc., etc., etc. *American Journal of the Medical Sciences*. 1888-89.

HORATIO C. WOOD, M.D.

- An Address on Trophic Lesions before the American Association of Physicians and the American Association of Physiologists in Joint Session.
- An Address, entitled "The Medical Profession, the Medical Sects, and the Law," before the Alumni Society of Yale College.
- Syphilis of the Nervous System. 12mo. 135 pp. Parke, Davis & Co. Detroit, Michigan.
- Contributions on Nervous Diseases to the *University Medical Magazine*, and upon Pharmacology to the *Therapeutic Gazette* and *The Medical News*.

JAMES K. YOUNG, M.D.

- Synopsis of Human Anatomy. 8vo. pp. IX., 393. Philadelphia and London: F. A. Davis. 1889.

IN *UNIVERSITY MEDICAL MAGAZINE*.

- Memoranda:—Paraplegia of Pott's Disease. March, 1889.
- Report of Clinical Lecture. By Prof. John Ashhurst, Jr., M.D.

IN *THE MEDICAL NEWS*.

- A Case of Club-Hand. May 12, 1888.
- Unilateral Anophthalmus, with a Case. June 9, 1888.
- Ophthalmology in Vienna. Correspondence. October 27, 1888.
- Tetanoid Paraplegia. July, 1889.

IN *AMERICAN JOURNAL OF MEDICAL SCIENCES*.

- Congenital Deformity of Tibia. February, 1888.
- Reviews on Orthopædic Surgery.

IN *MEDICAL AND SURGICAL REPORTER*.

- The Treatment of Spinal Caries. April 13, 1889.

IN *NEW YORK MEDICAL RECORD*.

- Pes Vagus Aquisitus, or Flat Foot. July 6, 1889.

APPENDIX XIV.

Abstracts of Reports of WHARTON BARKER, Treasurer of the University, for the years ending August 31, 1888, and August 31, 1889.

FROM REPORT, AUGUST 31, 1888.

General Summary.

GENERAL FUND—

West Philadelphia Real Estate,
Library, Museum, Perpetual
Insurance, etc. \$1,099,183 41
Less Ground Rent 10,000 00

\$1,089,183 41

Real and Personal Property . . . \$4,062 52 \$1,093,245 93

HOSPITAL FUNDS—

Real Estate, Perpetual Insurance
and Furniture 263,342 85
Real and Personal Property . . . 254,133 59 517,476 44

WARD FOR CHRONIC DISEASES FUND—

Real Estate (Gibson Wing) and
Perpetual Insurance 65,825 00
Personal Property 109,324 51 175,149 51
Special Hospital Funds 143,529 79 143,529 79

VETERINARY FUND—

Real Estate, Perpetual Insurance
and Furniture 44,945 94 44,945 94

DEPARTMENT OF BIOLOGY FUND—

Real Estate, Perpetual Insurance
and Furniture 25,662 21 25,662 21

MEDICAL DEPARTMENT FUNDS . . . 88,776 00 88,776 00

VARIOUS SPECIAL TRUSTS 804,633 90 804,633 90

\$1,488,959 41 \$1,404,460 31 \$2,893,419 72

Balance, August 31, 1887, of uncanceled deficit prior to August 31,
1886 \$17,310 81

Deficit, Department Science and Arts, 1888 5,853 95

“ University, 1888 7,888 64

\$31,053 40

Deduct donations, 1888 13,000 09

Balance August 31, 1888, of uncanceled deficit prior to
August 31, 1886 \$18,053 40

The Medical, Dental and Law Departments were self-sustaining.

The Departments of Arts and Science were maintained at a loss of \$5,853.95.

The Hospital Department has an annual deficit which is made good by the Board of Managers of the Hospital.

RECEIPTS AND DISBURSEMENTS.

	Receipts.	Disbursements.	Balances.	Deficits.
University	\$14,614 00	\$26,814 34		\$12,199 45
Departments.				
Arts and Science	71,431 59	77,285 54		5,853 95
Wharton School	8,430 99	8,430 99		
Biology	7,702 46	7,694 27	\$8 19	
Medical	60,462 15	59,650 43	811 72	
Auxiliary Medical	2,969 97	2,969 97		
Dental	17,642 49	16,279 33	1,363 16	
Veterinary	13,693 66	12,289 21	1,404 45	
Hospital	35,440 60	32,153 15	3,287 45	

DONATIONS RECEIVED DURING THE YEAR ENDING AUGUST 31, 1888.

Charles C. Harrison, General Expenses	\$2,500 00
H. H. Houston, "	2,500 00
Richard Wood, "	3,500 00
Joseph D. Potts, "	2,500 00
Charles C. Harrison (additional), General Expenses, balance of deficiency, 1888	2,000 00
Thomas Dolan, Department of Applied Organic Chemistry	5,000 00
Estate Lucretia C. Towne, J. H. Towne Estate	23,762 34
Anna B. Clayton, Library Building	1,000 00
Mrs. C. L. Patten, "	100 00
Harrison, Frazier & Co., "	10,000 00
James Hay, "	500 00
Wm. L. Conyngham, "	5,000 00
Alexander Brown, "	5,000 00
" An old Alumnus, "	500 00
C. B. Wright, "	5,000 00
J. Vaughan Merrick, "	2,500 00
Wharton Barker, "	2,500 00
Dr. Wm. Pepper, "	2,500 00
Edward S. Willing, John F. Frazer Chair of Physics	2,000 00
Phi Kappa Sigma Fraternity, Phi Kappa Sigma Fraternity Prize Fund	400 00
Dr. Geo. Fales Baker, Hospital Department	50 00
H. P. McKean, "	500 00
Wm. Weightman, "	250 00
C. H. Hutchinson, "	50 00
Charles Smith, "	100 00

Wm. M. Singerly, Hospital Department	\$100 00
Wm. F. Norris, " "	250 00
Charles Norris, " "	100 00
Henry Norris, " "	100 00
H. H. Houston, " "	250 00
Clarence H. Clark, " "	100 00
Agnes Dundas Lippincott, " "	50 00
Charles C. Harrison, " "	100 00
Juliana Wood, " "	150 00
James B. Leonard, " "	30 00
Pennsylvania R. R. Co., " "	1,000 00
Dr. Louis Starr, " "	20 34
Dr. Charles Schaffer, " "	100 00
S. P. Morris, " "	20 00
B. H. Bartol, Orthopædic Department	25 00
Richard Wood, Laboratory and Dental Building	50 00
Charles E. Pancoast, Treasurer Charles P. Krauth Fund	1,021 23
Stuart Wood, Department of Biology	500 00
Dr. Joseph Leidy, " "	12 00
Dr. Horace Jayne, " "	3,008 21
Hospital Recto-Genito-Urinary Diseases, Recto-Genito-Urinary Diseases Fund	4,090 79
Heirs of J. B. Lippincott, deceased, Veterinary Department	4,000 00
Pott Library Fund, per Professor J. G. R. McElroy	2,395 00
	<hr/>
	\$97,184 91
	<hr/>

FROM REPORT, AUGUST 31, 1889.

General Summary.

GENERAL FUND—

West Philadelphia Real Estate,
Library, Museum, Perpetual

Insurance, etc. \$1,248,857 93

Less Ground Rent 10,000 00

\$1,238,857 93

Real and Personal Property . . .

\$15,004 62

\$1,253,862 55

Amount available for payment
of note for \$70,000, given Mr.

Charles C. Harrison

45,266 62

\$1,208,595 93

Debt of Fund

115,350 00

\$1,093,245 93

Amount brought forward . . .			\$1,093,245 93
HOSPITAL FUNDS—			
Real Estate, Perpetual Insurance and Furniture.	\$263,342 85		
Real and Personal Property . .		\$254,197 66	517,540 51
WARD FOR CHRONIC DISEASES FUND—			
Real Estate (Gibson Wing) and Perpetual Insurance	65,825 00		
Personal Property		109,324 51	175,149 51
Special Hospital Funds		143,814 35	143,814 35
VETERINARY FUND—			
Real Estate, Perpetual Insurance and Furniture	44,945 94		
Personal Property		12,500 00	57,445 94
DEPARTMENT OF BIOLOGY FUND—			
Real Estate, Perpetual Insurance and Furniture	25,662 21		
Personal Property		10 00	25,672 21
MEDICAL DEPARTMENT FUNDS—			
		88,776 00	88,776 00
VARIOUS SPECIAL TRUSTS . . .			
		939,176 80	939,176 80
			<u>\$3,040,821 25</u>
 Balance August 31, 1888, of uncanceled deficit			
Departments of Science and Arts, 1889			\$18,053 40
			1,412 85
			<u>\$16,640 55</u>
Deficit, University, 1889			8,763 74
			<u>\$25,404 29</u>
Deduct donations			11,000 00
			<u>\$14,404 29</u>
Balance August 31, 1889, of uncanceled deficit			

The Medical, Dental and Law Departments were self-sustaining.

The Departments of Arts and Science were maintained at a profit of \$1,412.85

The Hospital Department has an annual deficit, which is made good by the Board of Managers of the Hospital.

The Wharton School of Finance and Economy was maintained at a loss of \$1,059.94, making deficiency account \$2,628.95.

Market value of securities in the Wharton School Fund, \$109.890.

RECEIPTS AND DISBURSEMENTS.

	Receipts.	Disbursements.	Balances.	Deficits.
University	\$13,414 85	\$27,819 14		\$14,404 29
Departments.				
Arts and Science	80,611 91	79,199 06	\$1,412 85	
Wharton School	8,440 00	9,499 94		1,059 94
Biological	11,712 56	11,712 56		
Medical	62,670 60	62,008 55	662 05	
Auxiliary Medical	3,721 03	3,721 03		
Dental	20,021 22	16,988 28	3,032 94	
Veterinary	15,462 27	14,973 84	488 43	
Hospital	39,493 64	38,687 28	806 36	

DONATIONS RECEIVED DURING THE YEAR ENDING AUGUST 31, 1889.

LIBRARY BUILDING.

C. H. Clarke	\$ 5,000 00
A. J. Drexel	10,000 00
A. M. Moore	1,250 00
Jos. F. Sinnott	1,250 00
Thos. McKean	5,000 00
H. C. Gibson	10,000 00
Hugh Copeland	50 00
Geo. Bullock	2,500 00
Wm. B. Hanna	25 00
H. H. Houston	9,000 00
Jos. D. Potts	5,000 00
A. B. Spooner	50 00
Samuel Dickson	2,500 00
Furness, Evans & Co.	591 17
Wharton Barker	2,500 00
Class of 1865	20 00
Strawbridge & Clothier	1,000 00
Dr. Wm. Pepper	2,500 00
Lewis Bros. & Co.	1,000 00
A Friend	1,000 00
Dr. S. Weir Mitchell	500 00
Charity Ball	2,000 00
J. T. Morris	500 00
E. W. Clark	2,500 00
Harriet Blanchard	2,000 00

SALARIES, SCIENCE AND ARTS.

Estate of Eli K. Price	1,000 00
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GENERAL EXPENSES. *

Richard Wood	\$2,500 00
Chas. C. Harrison	2,500 00
Anna W. Power	1,000 00
H. H. Houston	2,500 00
Dr. Wm. Pepper	1,500 00
Coffin, Altemus & Co.	1,000 00

DEFICIENCY AND REPAIR FUND, HOSPITAL DEPARTMENT.

Dr. Wm. Pepper	400 00
Thos. Dolan	500 00
Richard Wood	250 00

DYNAMICAL LABORATORY.

J. T. Morris	500 00
Neafie & Levy	500 00
E. B. Coxe	500 00
James Moore	500 00
Baldwin Locomotive Works	1,000 00
Bement, Miles & Co.	500 00
Wm. Sellers & Co.	500 00
Henry Disston & Sons	500 00
Hughes & Patterson	250 00
Wm. Weightman	500 00
Wm. Cramp & Sons	500 00

LABORATORY OF EXPERIMENTAL PSYCHOLOGY.

Prof. Geo. S. Fullerton	50 00
Jos. D. Potts	200 00
Prof. J. McK. Cattell	100 00
Frederick Fraley	50 00
Dr. S. Weir Mitchell	50 00
H. H. Houston	200 00
E. W. Clark	100 00
Samuel Dickson	50 00
Richard Wood	100 00
Charles C. Harrison	100 00
J. V. Merrick	100 00
J. G. Rosengarten	10 00
Alfred G. Baker	25 00
Mrs. Anna W. Baird	250 00
Dr. William Pepper	250 00
Wm. Sellers	100 00
E. Delano	100 00
J. H. Converse	100 00

MATERNITY HOSPITAL FUND.

Mrs. E. W. Field	\$500 00
Charles M. Lea	100 00
Richard Wood	50 00
D. Halkulem	100 00
Dr. J. K. Mitchell	66 66
Jas. H. Lloyd	10 00
Dr. Goodell	20 00
Dr. S. S. Stryker	25 00
Dr. Wm. Pepper	10 00

HOSPITAL DEPARTMENT.

Allison Manufacturing Company	300 00
City of Philadelphia (for ambulance)	375 00
Chas. C. Hutchison	100 00
Chas. Peabody	5 00
S. P. Morris	50 00
Mary A. W. Brown	20 00
Richard Wood	1,000 00
H. H. Houston	250 00
Wm. Weightman	250 00
Moore & Sinnott	100 00
Dr. Geo. F. Baker	100 00
W. S. Reyburn	100 00
Coffin, Altemus & Co.	100 00
Berwind, White & Co.	100 00

ALUMNI HALL FUND.

C. R. Woodruff	10 00
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PRIZE FUND LAW SCHOOL.

Mrs. P. P. Morris	1,000 00
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DR. WM. PEPPER MEDICAL LIBRARY FUND.

Anna H. Lucas	50 00
A Friend	50 00

VETERINARY FUND.

State of Pennsylvania	12,500 00
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PHYSIOLOGICAL LABORATORY FOR PLANTS.

J. V. Merrick	100 00
Wm. H. Furness	100 00
Dr. C. S. Dolley	200 00
Wharton Barker	100 00

DEPARTMENT OF BIOLOGY.

Joseph Ross	\$10 00
Dr. Horace Jayne	7,134 37

VETERINARY DEPARTMENT.

Heirs of J. B. Lippincott, deceased	4,000 00
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MATERNITY HOSPITAL FUND.

Dr. Barton C. Hirst	2,716 60
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AGRICULTURAL LIBRARY FUND.

George Blight, Treasurer of the Philadelphia Society for Promoting Agriculture	500 00
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CHAIR OF CHRISTIAN ETHICS.

Dr. George Dana Boardman	15 00
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\$120,788 80

REPORT
OF
THE PROVOST
OF THE
UNIVERSITY OF PENNSYLVANIA

For the three Years ending October 1, 1892.



PHILADELPHIA
UNIVERSITY OF PENNSYLVANIA PRESS
1893

REPORT
OF
THE PROVOST
OF THE
UNIVERSITY OF PENNSYLVANIA

For the three Years ending October 1, 1892.



PHILADELPHIA
UNIVERSITY OF PENNSYLVANIA PRESS

1893
m. d. .

THE NEW YORK
PUBLIC LIBRARY
CANCELLED

ASTOR, LENOX AND
TILDEN FOUNDATIONS.
1898.

REPORT OF THE PROVOST.

TO THE HONORABLE BOARD OF TRUSTEES :

GENTLEMEN: I have the honor to submit to you the following report of the operations of the University from January 1, 1890, to January 1, 1893. It covers a period momentous in the history of the University for the changes wrought by deaths, resignations, reorganizations and developments, and not less so to you personally for the unusual demands which these have made upon your time and thought as Trustees. The changes in the Board while not numerous have been gravely important. In 1890 the senior member of your board, the Rev. Dr. Henry Jackson Morton, departed this life full of years and honors, having served continuously as Trustee for a period of forty-six years. No brief mention can do justice to the unique position held alike in the University, the Church, and the city by Dr. Morton. In each he was the connecting link between the present and the past, as represented by Bishop White, and it may suffice to say that he worthily inherited the universal esteem once given to that venerable citizen and churchman.

Dr. Arthur V. Meigs was elected to fill the vacancy caused by the late Dr. Hutchinson's death, and at once began an active career in the work of your Board. As a member of the Committees on Ways and Means and on Medicine, and as Chairman of the Committee on Dentistry, he rendered useful services by time-consuming and painstaking work, one important result of which was the accurate adjustment of the obligations of the University to the conditions of its several trusts. Dr. Meigs resigned in 1892, and on the date of this writing the vacancy thus caused has not been filled. In 1891 Walter George Smith, Esq., was elected to the Board to fill the vacancy caused by Dr. Morton's death.

On December 2, 1890, Mr. Wharton Barker resigned the position which for nine years he had acceptably filled as

Treasurer of the University, and Mr. Richard Wood was elected Treasurer *pro tempore*, and has continued to be so up to the present time. The office of Treasurer is one of increasing onerousness and responsibility, and when held by a Trustee is of course without remuneration. Your Board owes a debt of gratitude to the gentlemen who have for so many years efficiently borne the burden and responsibility, but it is evident that as the invested funds of the Corporation increase, and the details of administration grow more complex, there must be a system devised which will ask of no one Trustee a service so much out of proportion to that demanded of his colleagues. Intimately connected with the Treasury is the work of the Committee on Ways and Means, of which, until the close of the present month, Mr. Harrison has been the efficient Chairman, but from which, to the great regret of all who are interested, he has just withdrawn. Mr. Harrison's devotion to the interests of the University was conspicuously manifested in his work in this Committee. Within the last two years its efficiency was greatly increased by a plan devised by him and sanctioned by your Board, by which the Committee was divided into sub-committees, respectively on University Accounts, Investments, Maintenance of Trust Funds and Obligation of Legacies, and on Increase of Resources, each with a Chairman and stated times of meeting; and by the appointment of two stated meetings of the General Committee in each month except those of summer. Only the Trustees and the Provost can appreciate the vital importance and grave responsibilities of the work of this Committee. It is the unseen and often unregarded force upon which ultimately depends the maintenance and expansion of every department of University activity, and upon its Chairman and members devolve the chiefest cares and labors of the governing body.

The past three years have also witnessed serious losses from the staff of instruction. In November, 1890, Professor John G. R. McElroy died after a brief illness. Professor McElroy became an instructor in the University in 1867, five years after his graduation, and held successively the posts of Assistant Professor of Rhetoric and History, Adjunct Professor

of Greek and History, and Professor of Rhetoric and the English Language until his death. He was a painstaking and industrious teacher, the author of several works in English which have become standard text-books, and commanded the hearty respect and affection of his fellow Professors.

In April, 1891, Professor A. Sidney Biddle was removed by death. Mr. Biddle became Professor of Practice, Pleading and Evidence at Law, and at once took an active part in the re-organization of the Law School, ultimately taking the title of Professor of Torts, Evidence and Practice at Law, under a re-arrangement of the duties of the several chairs. His death in the very prime of life and usefulness was a source of grief profound and universal. To a noble personal life he united distinguished ability as a lawyer and rare efficiency as a teacher, and I am sure that there have been few memorials entrusted to your Board that have been received so gratefully as that which will commemorate his name in the school which he loved and served so well.

The same month witnessed the death of one whose loss was not ours only, but that of the world of science. Joseph Leidy was an alumnus of the University, and may be said to have never left her precincts. His two functions of teacher and investigator were pursued together and chiefly within her walls. I will not venture within these narrow limits the delineation of a character so great that it needed no self-assertion, of a mind so vigorous and so richly stored, of researches and discoveries which won such applause wherever science is pursued. These are known to the world. It is for us gratefully to remember that every increment of power as a teacher and of fame as a discoverer brought profit and honor to the University in whose service his life was spent. His works are his sufficient monument. But will not men in future years ask how it came that the theatre of his achievements contains no visible memorial that here Leidy lived and taught?

In March, 1892, the death of D. Hayes Agnew, M.D., LL.D., Emeritus Professor of Surgery and Honorary Professor of Clinical Surgery closed a career of singular nobility of

personal character and of illustrious fame in the profession of surgery. The influence of Dr. Agnew upon his colleagues and students during his long years of service cannot be estimated, and the tributes to his memory which were paid so abundantly here were almost equaled by those which came from former students now living at a distance. He possessed every quality of an ideal surgeon, and whether as operator or teacher revealed the profound and accurate knowledge, the wise judgment, and the ever controlling conscientiousness which inspired confidence and admiration. You have given your cordial approval to the plan of a memorial to him which will not only tell how he was loved and honored here, but carry on the work always dear to him of alleviating human sufferings by the ministrations of scientific skill.

Professor John J. Reese, M.D., Emeritus Professor of Medical Jurisprudence and Toxicology, died September 4, 1892. Professor Reese had only recently retired from the active duties of his class in the Auxiliary Faculty of Medicine, and on his retirement was given the title of Emeritus as a testimony of the high esteem in which he was held both personally and professionally. His reputation was based not only on his ability as a lecturer, but on the authoritative text-book which he published, and on his skill as an expert in the delicate and critical questions which are included in the title of his chair.

Dr. Henry R. Formad, whose death occurred in June, 1892, was a singularly talented man, and a very efficient teacher in the fields of Pathology and Morbid Anatomy, in which he served as Demonstrator and Lecturer for a number of years. His death was a distinct loss to the Medical Department and to the profession.

During the summer vacation of 1892 Mr. Edmund A. Stewardson lost his life by drowning. Mr. Stewardson was one of the earnest workers to whose professional enthusiasm we owe the rapid development of the School of Architecture, and one of those to whom it looked for valuable help in the growth which is hoped for. He was Instructor in Modeling, and of such personal character and artistic promise as made his early death a keen sorrow to all who knew him.

In addition to these losses by death there have been changes occasioned by the inevitable demands for modifications in the methods and scope of our teaching, as the older subjects require subdivision and expansion, or are found not to be sufficiently in demand to warrant the maintenance of separate chairs. No subject within recent years has so taxed the thought, care and time of the Trustees as the readjustments in the College Faculty which were imperatively required to secure a maximum efficiency within the limits of the means at their disposal ; and the evidently good results of your carefully-considered actions do not obliterate the regret that in some cases the reorganization affected the positions of some whose relations to the University have been long and honorable. In other cases members of our teaching force whom we were very unwilling to lose have accepted calls to superior positions in other Colleges, which they could not be blamed for accepting in the view of slender probability of their equivalent advancement in our own staff at any early date. To offset this we have the gratification of noting that several of our most distinguished professors have declined offers of high honor and much greater emoluments through their loyal affection for the University and their conviction of the advantages which their present positions gave them for the prosecution of the special work to which as a high calling, and not a trade, they have devoted their lives. In the reorganization of the College Faculty, and in the filling of vacancies caused by death or resignation, accessions have been made to our Faculties, and while in some cases it is too soon to pronounce a positive judgment, we have every reason to believe that valuable additions have been made to our teaching staff. A detailed statement of deaths, resignations and appointments will be found in Appendix.

The wisdom of the Board in securing the additional land lying to the eastward of Thirty-fourth Street has been more than vindicated by the expansions made during the last three years, and the need, daily growing more apparent, of even more territory for the site of University buildings. Upon a portion of the new ground has been erected the Institute of Hygiene, to which reference will be made later on. Another portion has

been assigned to the Athletic Association, for the construction of a much larger and better equipped athletic ground than that which it now occupies, which is thereby released for other important purposes for which it is fully adapted. The triangular lot lying at the intersection of Woodland avenue and Thirty-sixth street has been conveyed, with the consent of the City, to the Wistar Institute of Anatomy and Biology, upon which the fine building of the Institute is being erected.

The new Library building has been completed since my last report, and has proved in plan and structure all that was hoped for. It was formally opened on February 7, 1891, when eloquent addresses were made by Dr. Horace Howard Furness and Mr. Talcott Williams before a very large and appreciative audience, including many distinguished visitors. The plans for the cataloguing, storage and use of the books is excellent, and the use of the library by students and professors is far greater than before such facilities were provided; the best order is maintained, and the Librarian and his assistants are faithful and efficient in the discharge of their duties. In my last report I stated that the upper rooms of the building would furnish ample room for years to come for the reception of collections of the newly-formed Department of Archæology in its several sections. It proves that I greatly underrated the vigor of the new Department and the hearty public interest taken in its work. Not only has every available room been filled to overflowing with the several collections, representing many hundreds of thousands of dollars in value, but every possible space upon and under the stairway has been used for the display of portions of the collections; and far sooner than was expected the urgent demand comes upon us for a building having all the fire-proof security of the Library, and specially adapted to the exhibition of these priceless and rapidly-growing collections.

The next great building contemplated was the Institute of Hygiene. It may suffice to say that the construction of this building was under the immediate personal supervision of the donor, Mr. Henry C. Lea, in constant association with Dr. John S. Billings. The result is a structure which is itself an object

lesson in Hygiene, and a model of perfect adaptation to its scientific purposes. It was formally opened on February 22, 1892, when before a large concourse of people, including many eminent hygienists, Dr. S. Weir Mitchell, on behalf of Mr. Lea, formally presented it to the Trustees. I had the honor of accepting it on your behalf, and able addresses were made by Dr. John S. Billings, Dr. Benjamin Lee, and Dr. H. P. Wolcott. Once again the result of careful and scientific forethought is manifested in a building which meets every requirement of teaching and research, and stands a monument not only of the liberality but of the practical wisdom of its donor.

An important and unique structure erected during this period was the Canine Infirmary, in connection with the Veterinary Hospital. The treatment of sick dogs is an important part of the Hospital work, and the special difficulty connected with their contagious diseases made it almost impossible to care for them in the general buildings. It was deemed good economy to erect a substantial two story-building, divided into two absolutely non-communicating sections, and filled up with every convenience and security for the treatment of canine disorders.

Plans are now being made for the construction of a Chemical Laboratory for the College Department, to be erected at the north east corner of Thirty-fourth and Spruce Streets. This convenient location was made possible by a gift from the City of Philadelphia of a small triangle of ground left open on the city plan, the acquisition of which squared our ground and made available for building purposes a portion which would otherwise have been of little use.

One of the most important movements of recent years was the construction of a Central Station for Heating and Lighting, designed to supply these essentials to all the buildings upon the University grounds. Various systems of heating had been employed in the several buildings. In some of these the plant was originally and inherently defective. In others that which had fairly well answered its original purpose had worn out, and speedy renewal was essential. In none of the buildings was there an effective system of ventilation, and in all the only means

of artificial light was the expensive and unsatisfactory city gas. After a careful study of the subject, it was seen that the truest economy, as well as great improvements in the sanitary condition of the buildings, would be secured by the erection of a Central Station wisely planned and to be efficiently engineered, from which ample steam supply, forced ventilation, and electric lighting could be supplied to all the departments. It was recognized that the first cost would be very great, not only in the construction of the buildings and plant, but in the adaptation of the old buildings to receive the new system. But it was also seen that an equitable charge, based upon carefully measured actual consumption by each department, would within reasonable time not only pay current expenses and interest, but gradually refund the principal, and that this charge ought not to exceed that now paid for a far inferior service. The work was committed to Messrs. Wilson Brothers, Architects, associated with Professor Spangler, as the University's expert, and proved to be even more difficult than was at first expected. Coincident with this important improvement came the urgent demand of the Mechanical and Engineering Department for accommodations and facilities to correspond with its phenomenal development, and it was at once apparent that an enlargement of the proposed building, sufficient to adapt it to this incidental demand, would be the wisest course, saving expense, and making the actual working plant a practical laboratory as well. The equipment, as a Heat and Light Station, consists of a boiler house, 100 by 50 feet, equipped with examples of the best modern types of steam boilers. The plant will contain externally and internally fired shell boilers and several water-tube and other boilers of sectional type.

Adjoining this building is the new Engineering Laboratory. This building is 100 by 45 feet and three and one-half stories high. On the first floor are the engines and dynamos used for lighting all the University buildings.

The dynamos to be used for lighting purposes include examples of the best modern types of both direct and alternating current machines. There are several plain slide valve engines of 15 horse-power each, used for running blast and ventilating fans,

in addition to those used for the dynamos, and a carefully constructed system of tunnels and protected piping by which steam and electricity are conveyed to the separate buildings. The steam from each building is condensed and the return water measured, indicating the amount of heat radiated in that building, upon which the charges to each Department are based.

I now beg your attention to the work of the several Departments of the University as exhibited in the appended reports of the Deans, and to a consideration of some of the important changes and developments which have been accomplished in the last few years.

The College Department has shown a steady and gratifying increase in the number of its students, and an equally marked improvement in its organization, equipment and system of instruction. The serious alterations to the building, made necessary for the introduction of the heat and light system, necessitated many changes in the interior of College Hall, and advantage was taken of the repairs to greatly improve the appearance of many of the rooms. The removal of the Mechanical Engineering Department to the new building, and the dedication of its rooms to other departments greatly needing them, required that they should be refitted for their new purposes, and the result is that under the supervision of our architectural professors the building has not only been placed in far better sanitary condition, but made much more attractive in appearance. The early removal of the chemical laboratories to their appropriate building is all that is needed to relieve College Hall of the congestion which has caused portions of the corridors to be cut off for rooms, and to give the whole building an appearance suited to its proper purposes. The administration of the Department has demanded more thorough system concurrent with its growth, and suitable offices have been fitted up for its officers and those of your Board, provided with every convenience for the transaction of business. Important changes have been made in the organization of the Department. Among these, perhaps the most important is the final adoption of four years' technical courses in Architecture, in Mechanical and Electrical Engineering, and in Chemistry,

not as superseding, but as alternative to the former five years' course embracing these subjects, which is still retained. It is a concession to the needs of many students, which has been made without the sacrifice of the high standards hitherto maintained in the matter of scholarship, and it has had a notable effect in increasing the number of matriculates without impairing their quality. The details of the two courses now available and the distinctions between them will be found concisely stated in the Dean's report. Your attention is particularly called to the success of the new School of Architecture, which was the first to urge the adoption of this plan, and which seems to so abundantly justify it by its large accessions of students. Already you are called upon to increase the force of instructors in this growing school for the coming year, and there seems to be every reason why this should be done. The school is fortunate in the warm support which it receives from the members of the profession, and much valuable instruction is given by them gratuitously as lecturers upon special subjects.

The Mechanical and Electrical Engineering course has developed an unexpected strength during the last three years. Through the exertions of Messrs. Merrick and Sellers of your Board a very complete equipment of metal and wood-working apparatus, together with engines for motive and for testing purposes, was procured and placed in suitable apartments in College Hall, which it was supposed would be sufficient for some years to come. But the number of students attracted to the course under the energetic administration of the professor in charge soon made it impossible to conduct the instruction in such limited quarters. Happily, the construction of the Heat and Light Station gave an opportunity, at a minimum of expense, to provide fully for requirements of the Department by the enlargement of that building to the proper extent; and the result is that three floors of 45 by 100 feet are devoted to the purposes of a Mechanical Laboratory in addition to that occupied by the working plant of the station, as heretofore described.

The Department of Chemistry is another in which there have been large accessions of students, and for which the quarters assigned in College Hall have become entirely inadequate.

Apart from its technical course is the increased demand made upon it by every increase in the College itself, and the construction of a separate laboratory has become an imperative necessity. As will be seen in the Dean's report, Mining Engineering, including Metallurgy, has been merged into the departments of Chemistry and Civil Engineering, enabling the College to give instruction equivalent to that formerly offered in these subjects, but with greater economy in administration.

The School of Biology has steadily pursued its useful work with as many students as the laboratory can possibly accommodate. In addition to the regular home work, an important movement was made in 1891, when Mr. Charles K. Landis deeded to the University a valuable lot of ground at Sea Isle City, N. J., for the erection of a seaside laboratory. Upon this ground a substantial frame building was constructed, equipped with pumps, tanks, aquaria and laboratory rooms, and here for two summers classes have been taught, private investigations pursued and interesting collections made under the supervision of members of the biological staff detailed for that purpose. It is earnestly hoped that sufficient funds may be contributed to put this work upon a substantial basis, and to enable it to make full use of the unique facilities which the situation and the plant afford.

The Wharton School of Finance and Economy has continued to demonstrate the wisdom of its founder by attracting increasing numbers of young men to its courses, which have been steadily strengthened in the light of experience. It is seriously debated whether the Wharton School course should not be made a full College course, beginning with the Freshman year, and embracing in the earlier years the general culture studies, so modified as to best qualify the student for the special studies of the two later years. Not only has the work of the School been vigorously prosecuted by the members of the Faculty, but they have taken an active part in enterprises which have indirectly advanced its interests. To them is chiefly due the establishment of the American Academy of Social Science, which, by its widely-extended membership, its interesting sessions

and its able publications, has drawn public attention to the school with which its promoters are identified.

In addition to this, members of the staff have conducted several publications on Political Economy and Public Law and History, which have now reached eleven numbers. These have attracted very wide attention both here and abroad, and indicate the important character of the researches carried on in the seminars of the School.

To the Wharton School may be traced the genesis of the School of American History and Institutions, formally instituted in 1891. For some time previous to this date Professor Francis N. Thorpe, then Lecturer on American History, had been quietly collecting, through the liberality of a few generous individuals, a valuable library of works on American history, comprising an almost complete set of records of the National Government, Laws of States and Territories, State Records and Municipal Ordinances, and now amounting to about 13,000 volumes. With this as a basis of instruction and research, the scheme for a school in this important line of study was carefully elaborated, and placed in charge of Professor McMaster, Professor of American History, and Professor Thorpe, Professor of American Constitutional History. The actual work of the School began in October, 1892, and sufficient time has not elapsed to permit any definite report of its operations, or of its ultimate place in the College system.

The mention of this special library recalls an important movement to meet the needs of Professors and Instructors apart from the provisions of the general Library. It was the purchase, through special funds collected by Mr. Charles C. Harrison, of a series of working libraries for class-room use, consisting of the reference books which are in daily and constant use in the immediate work of the class. For their care and use the Professor is responsible, and the Library is relieved from incessant demands, and the time of teachers and students greatly economized.

I am happy to report a gratifying improvement in the daily chapel services, brought about by assiduous attention of your

Committee on Religious Services to the duty of its appointment. Beginning with January, 1892, these services were entrusted to four chaplains selected from prominent clergymen of different denominations, each of whom serves daily for one week at a time throughout the College year. In addition to the former service of reading, singing and prayer, the Chaplain is expected to deliver a brief address on some important topic, the entire service to be restricted to fifteen minutes of time. The preparation of such brief addresses that shall be at the same time effective demands unusual personal ability, and it is gratifying to note that the gentlemen selected have succeeded admirably in enlisting and maintaining the attention and interest of the students. For an hour after the Chapel service the Chaplain is in attendance in the Faculty room to receive and advise with any student who cares to consult with him on any interest of the social, moral or spiritual life, and it is believed that these conferences are in many cases most helpful to the young men who avail themselves of the privilege offered. The Rev. Dr. George Dana Boardman, the Rev. Dean Bartlett, the Rev. Dr. Charles Wood, the Rev. Dr. J. A. M. Chapman, the Rev. Leverett Bradley, the Rev. Dr. J. A. Lippincott, and the Rev. Dr. John T. Beckley are they who have thus far conducted this beneficent and in some respects laborious work, and they have the satisfaction of knowing that the opportunity for spiritual influence upon young men, the most of whom have influential lives before them, is one which they are meeting with every assurance of success and grateful appreciation. The services have been further improved by a careful organization of the College choir, which has been placed under the able direction of Mr. Frederick B. Nielson as choir-master, and has already attained a high degree of proficiency.

I cannot conclude this review of the operations of the College Department without again calling attention to its most urgent need—that of adequate financial support.

There are in every college pay students and free students, but the difference between them is merely a difference in degree. No man can exhibit receipted tuition bills and say "I have paid for my son's education." He has *contributed* to the expenses of

that education all that was asked of him, but the education itself has cost in actual money outlay from 30 to 50 per cent. more than the total of his bills. The remainder was paid from the income of gifts and legacies by men and women long dead, to whom this higher education was something of sacred importance, and by a steady stream of gifts from the comparatively few of the living who feel that in the maintenance of institutions like ours they can best promote the highest welfare of their fellow men. Without such resources as these not a college in the land could be maintained. The tuition fees cannot be raised to a sustaining point without debarring from the higher education a large proportion of the very men for whose education the colleges deserve to exist. Without such resources free tuition of those from some of whom will come the highest honor to the college that educated them would be impossible. The need of such resources becomes yearly more urgent.

We are painfully conscious that the average salaries now paid to professors and instructors are altogether unworthy of the talents, the zeal, the loyalty and the labors that are demanded of one who is at all worthy of such a position. The material equipments needed for our advanced modern education represent a very large capital, and large annual expenditures to keep them abreast with the times. Meanwhile, with the increase of population, and under the stimulus of a more widely-diffused secondary and primary educational system, an ever-increasing number of young men are thronging to our doors. Among them are some of rare promise, to whom even our moderate tuition charges are prohibitory. You have already strained your resources to the utmost in the liberal grant of scholarships to deserving students. To continue them in such numbers as in the last few years is absolutely impossible on existing means. Our one, supreme, and urgent need is that of money. We need first an endowment fund worthy of the work which is committed to our hands. The noble contribution to such a fund made by Mr. John Henry Towne is a memorial of his lofty conception of that work ; and as a direct result of that example, and so stated in his will, is the bequest of the late Charles Lennig, Esq., of a like munificent

sum for the very purpose of supplementing his friend's benefaction. The Lennig fund will not be available for some years to come, and meanwhile, or until others shall be moved to create such a fund, we need a maintenance fund created by annual gifts, and adequate to meet the inevitable annual deficit, and the urgent need of expansion and improvement. Such a fund was created by subscription two years ago, to cover a period of three years, and was contributed by a very few of our old and tried friends. A movement is now on foot to establish it in permanent form, and to enlist as contributors to it every available friend, and especially the alumni, and to encourage subscriptions of small as well as of large sums, so that the largest possible number may be interested.

Another and most efficient source of maintenance is in the foundation of scholarships. The very small number of these that have yet been endowed in the University, and they only to the annual value of tuition fees, is in strong contrast to the large number which are offered in some of our larger Colleges, and which present such attractive inducements to the best and ablest young men. Such endowments bear the name of the donor or a name selected by him, and are not only perennial well springs of beneficence, but among the fittest permanent memorials of the benefactor who creates them. They strengthen the University not only by the increase in its income, but by enabling it to extend to deserving students that aid without which they would be unable to pursue their chosen career.

I again refer you to the appended report of the Dean, to whose good judgment and eminent administrative ability the Department owes much of its satisfactory condition, both in improved accommodations for business and instruction, and in the gradual development of its courses and curricula to the highest educational advantage.

The Department of Philosophy is rapidly taking that place in our system which it ought to hold as the distinctive expression of the University idea. It was a wise thought to make the Dean of the College Dean also of this Department. By this appoint-

ment the undergraduate and graduate courses were better co-ordinated, and the order of your Board requiring Professors to give graduate instruction when called upon to do so was made practicable by their release from an equivalent amount of undergraduate work. The rapid increase in the number of matriculates, from 53 in 1890 to 117 in 1892, shows that the unusual facilities which we are able to offer in special lines of study are fully appreciated by the growing number of men and women who find the post-graduate studies essential to their full equipment for their life work. For women form no inconsiderable number of these matriculates. The Graduate Department for Women, which was formally opened on May 4, 1892, finds its instructors and equipment in this Department, and is governed by its rules. The Hall donated by Col. Bennett, after a few alterations to adapt it to the needs of the Department, was completely furnished through the exertion of the ladies on its Board of Managers, and is the home of the resident students. There is need of the endowment of more fellowships in this Department for the maintenance of the full number of women which the Hall is able to accommodate while pursuing the graduate studies which are open to them as freely as to men, and which lead to the same degree, the Doctorate in Philosophy.

The Department of Medicine has had an eventful and most prosperous career during the period covered by this report. Professor James Tyson, to whom the Department owes so much for invaluable services as Secretary, and later as Dean, feeling that the duties of his chair and his increasing practice made it a necessity, resigned his Deanship in 1892, and was succeeded in that office by Professor John Marshall, whose able management of the Veterinary Department indicated his fitness for the position. The mutual pledges between Mr. Henry C. Lea and the University have been happily fulfilled. Within the stipulated time the former has completed and handed over for use the building for the Institute of Hygiene. Dr. John S. Billings has entered upon his duties as Director and established the courses, which while related to all departments, are especially affiliated with that in Medicine. The guarantee fund for a fourth year to be established

in the Medical School has been secured, and the important announcement is now made that beginning with the fall of this year the required course for a degree in Medicine will cover four years. Much care and labor has been expended in re-casting the curriculum to secure the fullest advantage from this additional year, and it is believed that the gain will not only be in fuller and wider instruction in all departments, but in so regulating and distributing that work as to greatly relieve the stress upon the students' health and strength.

The increase in the number of students attending the Department has been so great as to seriously tax the capacity of its buildings and the possibilities of its roster. Never before in its history have there been so many upon its rolls. Much of this increase is no doubt due to the desire of some to take advantage while they could of the three years' course while it was still available; but there yet remains the gratifying fact that the reputation of the school, and consequent value of its diploma in the eyes of the community have been maintained and increased, so that earnest students, who aim at the highest attainments in their profession, enter its halls rather than seek elsewhere for an education which would cost less in time, money, and effort. It is in faith in the continuance of this spirit that we make the advances which are demanded by the enlarging fields of medical science. With each advance there is a temporary falling off in the number of students; after each ebb there is the surging in of a larger tide; and I question whether the next expansion demanded of you be not in the way of enlarged buildings, increased equipments and a larger staff of instruction.

As on the one side the Institute of Hygiene affords increased facilities to the Medical School, so on another the newly-established Institute of Anatomy and Biology enriches it in the line of Anatomy in its widest scope, and affords opportunity for the most advanced post-graduate and investigative work. The proposal of General Isaac J. Wistar to erect a fire-proof building in which to place securely the historic Wistar Museum with its constant accretions, and in which there should be space and facilities for a vastly greater work in Anatomy and its kindred

sciences than Medical Hall could be expected to supply, was gladly accepted by your Board, along with the careful provisions of General Wistar for the perpetual sanctity and security of the building, its uses and endowments. These include the formation of a corporation to which the necessary ground was conveyed and the Museum entrusted, with full safeguards to the University as to controlling management of the Institute, and the remote possibility of reversion. The building is now nearing completion, and promises to be not only a magnificent addition to the University group, but to fulfill the highest expectations of its generous donor as a complete storehouse and workshop for that science of which Dr. Caspar Wistar was so illustrious an exponent.

The Dental Department has had an unexpected degree of prosperity during this period, while laboring under adverse circumstances of peculiar character. The establishment of the three years' course was not attended with the decrease in the number of students entering the first year that was expected, and we are now assured that there will be no lack of students if the high grade of the school be maintained. But this will be impossible unless greatly increased facilities are immediately provided. There is the most urgent need of a building devoted to the special work of the school, and filled with all the appliances needed for the teaching of an art which has made very great developments in the last decade, and which now demands the highest professional and technical training in its practitioners. The public has not yet fully realized the relations of modern dentistry to health and even to the prolongation of life. When these are known there ought to be the same spirit manifested as that to which the medical schools have not appealed in vain, and there should be no difficulty in raising the absolutely necessary funds for the advancement of the Dental School to a position which its importance deserves. I earnestly beg your serious attention to the needs of this Department. The members of the Faculty have reached a point in the development of the school beyond which they cannot go without assistance; to stand still means to fall behind the other leading schools of the

country and to forfeit the position already gained; and an inspection of the Dean's report will show that with proper facilities provided there need be no fear that the Department would not creditably maintain itself from its current receipts.

The reports of the Veterinary School and Hospital exhibit a steady improvement in buildings, grounds, equipment and administration, with an equally gratifying increase in the number of the students. Both represent a profession which has yet to make its way to a full appreciation on the part of the public. The high standard of the school and the rigorous requirements of its curriculum exclude all but capable and diligent students from the course, limit the number from whom fees might be derived, and ensure graduates fully competent to serve the community in a most important interest. Their thorough training would be impossible without the clinical advantages of an extensive hospital. The Hospital, primarily for this purpose, becomes a great charity, in which last year more than 1500 dumb animals were treated without charge to their owners. The maintenance of this educational and charitable work would be impossible without generous assistance. The children of the late J. B. Lippincott, Esq., have continued their liberal gifts to the school which so largely owes its existence to his warm and hearty interest, and Mr. J. E. Gillingham, who was associated with him in the inception of this movement, and continues to occupy the position of President of the Board of Managers of the Veterinary Hospital, still manifest a warm and liberal interest in the development of this Department. The Legislature is now considering a bill to extend to the hospital the moiety of an appropriation made in 1889, of which only one-half was then available through lack of public funds. The State receives a full return for this appropriation in the scholarships placed at its disposal, and it is earnestly hoped that the moderate endowments suggested by the Dean, in his report, may be obtained, and the permanent prosperity of the Department thus assured.

The Law Department presents a most gratifying report. A gradual but steady increase in the number of enrolled students, and the generally high averages attained by them in term and

final examinations, indicate a prosperity and effectiveness directly resulting from the energy and enthusiasm of a happily-constituted Faculty, to every member of which the success of the school is dearer than his personal advantage. The establishment of the Algernon Sidney Biddle Fellowship by members of the family of the late honored Professor added one more efficient teacher to the staff, and set a valuable prize for the stimulation of earnest work in the Department. The liberal appropriations from the income of the school for the maintenance of the George Biddle Memorial Library have already added about 30 per cent. to the original number of volumes, and in addition to this the Department has contributed to the general expenses of the University an equitable share of its gross income. The apartments in the Girard Building occupied by the School and Library are attractive, conveniently situated and kept in admirable condition, but it is evident that if the Department continues to increase in numbers of students and teachers as the Library is certain to increase, the need of larger accommodations will surely come, and these should be found in a building of our own, not far from the present location. It might be a wise economy to secure a suitable site before the demand becomes imperative and in advance of an almost certain increase in the cost of property with each succeeding year.

The Department of Physical Education and the Athletic Association of the University constitute together the agency by which the athletic interests of our young men are controlled and fostered. Nothing in late years has contributed so much to bring the several Departments into solidarity as the participation by the students of all in the athletic exercises and contests in which the University has at last gained a creditable position. Determined and effective resistance has been made to the effort to restrict the latter to the undergraduates of the College department and to regulations which would debar men who had previously belonged to other institutions. The broader University idea has prevailed, and it is now almost unanimously admitted that the only condition of participation in inter-collegiate games should be a bona fide scholarship, whether undergradu-

ate or post-graduate, and that the elimination of professionalism and the correction of all other abuses which threaten college athletics may be amply secured by athletic associations composed of students and alumni, whose character and tone could not be questioned, and by a proper supervision by the University authorities over a matter in which the credit of the University is so intimately involved. This is the provision which is made here, and the while we are more concerned with the good results of well-ordered athletics to the physical, hygienic, and moral welfare of our students than with their victories on the field or course, we cannot be altogether indifferent to the triumphs which have inspired such enthusiasm among them and their friends, nor to the zealous co-operation of the alumni, whose activity in the Athletic Association has made such triumphs possible. The assignment of the tract of land east of Thirty-third Street and north of South Street, immediately contiguous to South Street Station, will enable the Association to lay out a much larger athletic field than that now occupied, and give opportunity for the construction of special buildings for which there is no room on the present ground. We may confidently trust that the zeal inspired by the recent successes of our students, and the earnestness with which their efforts are supported by a strong body of graduates, will ultimately secure all that is needed for a full athletic equipment upon the new grounds.

There is as yet no suitable gymnasium. The room devoted to that purpose in College Hall is altogether inadequate, and the apparatus insufficient and much of it out of repair. That there should be a new gymnasium is unquestioned. Whether it should be a distinct building upon or adjacent to the athletic grounds, or whether it should be an adjunct to a larger structure devoted to all the purposes of a Students' Hall, is now open to discussion. For by a spontaneous act of the undergraduates the need of such a hall has been brought to your attention and received your cordial endorsement. The fact that among our two thousand students there is a large proportion from abroad, whose domestic life for three or four years is limited to the meagre accommodation of necessarily low-priced boarding

houses, the cruel exposure to various temptations which this involves, the need of humanizing, refining and moral, not less than of religious, influences during this critical period of their lives—all these plead for such a home centre in the University life as is represented in many colleges by their handsome and well-equipped Young Men's Christian Association Halls. The acceptance of the general plan of these does not necessarily involve either the name or the limitations of that association. In fact, it would seem wiser and more consonant with our traditions to avoid both, and, in accordance with the report of your committee on that subject, to aim at the construction and equipment of a building which would afford rooms for all religious organizations among the students, rooms for reading, recitation and social intercourse, everything, in fact, that would tend to make up for absence from a refined home, and to allure from haunts of vice and dissipation. The students began a subscription for such a building, which immediately received large accessions from those whose heartfelt interest in their best welfare gladly sought this expression; the details of the plan are now under serious consideration, and I confidently hope that the next report will announce the completion and use of a building which will represent in the fullest manner the University's idea of what the life of her sons should be.

Closely connected with this subject is that still unsettled one of dormitories. For one reason and another no progress has been made beyond the approval of a general plan of a building and the arrangement of its apartments. But the demand for such an accommodation for our students is steadily growing, and more and more is endorsed by members of the Faculties and others who are most intimately in contact with them, and best acquainted with their needs. Much that I have said in regard to a students' hall applies also to a dormitory, but in addition to that there is the serious argument of the dangers to health to which our students are too often exposed in the boarding houses which they are forced to inhabit. There is no more healthful situation than that occupied by the University and the properties adjacent to it. But, unfortunately, many of the residences in its

neighborhood having been built by speculators at about the time of the Centennial, upon ground not properly prepared and in the cheapest possible manner, the original defects of construction have become more serious by the lapse of time, and are a constant menace to the health of the occupants. From a medical standpoint I cannot overrate the importance of strict hygienic conditions in the apartments in which the hours of study and of sleep are passed, and I cannot feel that our students are cared for as they should be until there be within their reach apartments which we know to be wholesome in construction and surroundings, and which can be kept so by a vigilant supervision on the part of our own authorities.

I regret that I cannot, without unduly enlarging this report, dwell upon the very important work accomplished, and the large accessions to our material for instruction and research secured by the efforts of the faithful co-workers in our auxiliary associations. The University Lecture Association is no longer an experiment, but year by year pursues its interesting work, and offers to the University and the public courses of the highest educational value by the best lecturers obtainable, whether at home or from abroad. Among these are some whose presence on the platform could not be secured by any pecuniary inducement, but whose love for the University, and regard for the earnest men and women who in this way seek its advancement, prevailed upon them to give to its students and the community the choicest fruits of their ripe and cultivated learning.

The Archæological Association has vigorously prosecuted its work in the maintenance of the Department of Archæology and Palæontology as now reorganized, and I commend to your careful perusal the excellent report of the Board of Managers of the Museum, which has just been published. The accumulation of valuable material which has been made since 1889 is almost incredible, and in some cases unrivaled in this country. By purchase, by gift, by deposit, and by actual exploration by our own expeditions and collectors, each of the six sections is receiving constant accretions; and unless speedy relief is given by the erection of a museum building there will be no space for them

save in boxes in the basement of the Library. You have agreed to provide a site for the Museum. It remains for those who can appreciate the educational value of the actual and tangible monuments of archæology and ethnology, grouped in great collections and cared for by learned and zealous curators, to find the means for the erection of such a building as may safely and worthily enshrine them. It seemed desirable that the University should be properly represented among American educational institutions at the Columbian Exposition. In some respects this was a difficult undertaking, for much of the work of the University is incapable of visible representation. But out of the treasures of our Museum it was not difficult to select representative collections which are not mere possessions, but the actual result of enterprises here undertaken and accomplished, and these will form a most attractive portion of the exhibit under the charge of Mr. Mumford, the Assistant Secretary.

In conclusion, I beg to commend to your attention the appendices to this report, which contain detailed information on various matters I have only slightly touched upon, and especially to the abstract of the annual reports of the Treasurer, and to the grateful record there made of the money donations which the University has received during the last three years.

WILLIAM PEPPER,
Provost.

APPENDIX I.

DEATHS.

- Nov. 2, 1890. Rev. Henry Jackson Morton, D.D., Trustee.
Nov. 26, 1890. John G. R. McElroy, A.M., Professor of Rhetoric and the English Language.
April 9, 1891. Algernon Sidney Biddle, A.M., Professor of Torts, Evidence and Practice at Law.
April 30, 1891. Joseph Leidy, M.D., LL. D., Professor of Anatomy and Zoölogy, and Honorary Dean of the Medical Faculty.
Mar. 22, 1892. D. Hayes Agnew, M.D., LL.D., Emeritus Professor of Surgery, and Honorary Professor of Clinical Surgery.
June 5, 1892. Henry F. Formad, M.D., Demonstrator of Morbid Anatomy and Pathological Histology, and Lecturer on Pathological Histology.
July 3, 1892. Edmund A. Stewardson, Instructor in Modeling.
Sept. 4, 1892. John J. Reese, M.D., Emeritus Professor of Medical Jurisprudence.

RESIGNATIONS.

- Nov. 5, 1889. Samuel B. Howell, M.D., as Professor of Mineralogy and Geology.
Dec. 3, 1889. Rush Shippen Huidekoper, M.D., V.S., as Professor of Veterinary Anatomy.
Feb. 4, 1890. Louis Starr, M.D., as Professor of Diseases of Children.
June 3, 1890. A. H. P. Leuf, M.D., as Director of Physical Education.
June 24, 1890. George Strawbridge, M.D., as Clinical Professor of Otology.
Oct. 7, 1890. Samuel G. Dixon, M.D., as Professor of Hygiene.
Dec. 2, 1890. Wharton Barker, as Treasurer.
April 7, 1891. James McKeen Cattell, as Professor of Psychology.
May 5, 1891. Hobart A. Hare, M.D., as Professor of Diseases of Children.

- Aug. 6, 1891. Thomas W. Richards, A.M., as Professor of **Architecture**.
 Oct. 6, 1891. John J. Reese, M.D., as Professor of Medical **Jurisprudence and Toxicology**.
 Dec. 1, 1891. John B. Roberts, M.D., as Lecturer on **Anatomy**.
 June 4, 1892. George A. Koenig, Ph.D., as Professor of **Mineralogy and Metallurgy**.
 Oct. 4, 1892. Arthur V. Meigs, M.D., as Trustee.
 Oct. 4, 1892. Lewis M. Haupt, A.M., C.E., as Professor of **Civil Engineering**.
 Dec. 6, 1892. George E. DeSchweinitz, M.D., as Lecturer on **Medical Ophthalmology**.

REMOVALS.

- June 14, 1892. Robert Ellis Thompson, D.D., as John Welsh **Professor of History and English Literature**.
 June 14, 1892. Charles S. Dolley, M.D., as Professor of **General Biology**.

APPOINTMENTS.

GENERAL.

- March 4, 1890. Arthur V. Meigs, M.D., to be Trustee.
 April 7, 1891. Walter George Smith, A.M., to be Trustee.
 June 2, 1891. Edward Warloch Mumford, Ph. B., to be **Assistant Secretary**.

UNLIMITED, OR FOR A PERIOD OF THREE YEARS OR MORE.

COLLEGE DEPARTMENT.

- Dec. 3, 1889. Edward D. Cope, Ph.D., to be Professor of **Geology and Palæontology**.
 " " George H. Horn, M.D., to be Professor of **Entomology**.
 June 24, 1890. Henry M. Spangler, U.S.N., to be **Whitney Professor of Dynamical Engineering**.
 June 24, 1890. Maxwell Sommerville, to be Lecturer on **Glyptology**.

- Dec. 2, 1890. Edward P. Cheyney, to be Assistant Professor of History.
- “ “ Theophilus P. Chandler, to be Director of the School of Architecture.
- “ “ Charles E. Dana, to be Professor of Art.
- May 5, 1891. Francis N. Thorpe, Ph.D., to be Professor of American Constitutional History.
- June 23, 1891. Felix E. Schelling, A.M., to be Professor of English Literature.
- “ “ Warren P. Laird, to be Professor of Architecture.
- April 12, 1892. William A. Lamberton, A.M., to be Professor of the Greek Language and Literature. (Re-election).
- June 14, 1892. Arthur W. Goodspeed, Ph.D., to be Assistant Professor of Physics.
- “ “ Edwin S. Crawley, Ph.D., to be Assistant Professor of Mathematics.
- “ “ Hugo A. Rennert, Ph.D., to be Assistant Professor of Romance Languages.
- Sept. 13, 1892. Edgar Marburg, C.E., to be Acting Professor of Civil Engineering.
- “ “ John M. Macfarlane, Sc.D., to be Professor of General Biology.
- “ “ James Harvey Robinson, Ph.D., to be Associate Professor of History.
- Nov. 1, 1892. J. Hartley Merrick, A.B., to be Assistant to the Dean.
- Dec. 6, 1892. E. Otis Kendall, LL.D., to be FLOWER Professor of Astronomy.

DEPARTMENT OF MEDICINE.

- April 1, 1890. Hobart A. Hare, M.D., to be Clinical Professor of the Diseases of Children.
- Dec. 2, 1890. B. Alexander Randall, M.D., to be Clinical Professor of Diseases of the Ear.
- June 2, 1891. George A. Piersol, M.D., to be Professor of Anatomy.
- “ “ Edward Martin, M.D., to be Clinical Professor of Genito-Urinary Diseases.
- “ “ J. P. Crozer Griffith, M.D., to be Clinical Professor of the Diseases of Children.

- June 2, 1892. John B. Deaver, M.D., to be Assistant Professor of Applied Anatomy.
- “ “ John S. Billings, M.D., LL.D., to be Professor of Hygiene.
- June 23, 1891. Louis A. Duhring, M.D., to be Professor of Skin Diseases.

DEPARTMENT OF LAW.

- June 2, 1891. George M. Dallas, LL.D., to be Professor of Torts, Evidence, and Practice at Law.

DEPARTMENT OF VETERINARY MEDICINE.

- June 2, 1891. Leonard Pearson, V.M.D., to be Assistant Professor of Theory and Practice of Veterinary Medicine.

DEPARTMENT OF HYGIENE.

- Feb. 3, 1891. John S. Billings, M.D., LL.D., to be Director of the Department.
- “ “ Alexander C. Abbott, M.D., to be First Assistant in Hygiene.
- May 21, 1891. Albert A. Ghiskey, M.D., to be Assistant in Hygiene.

DEPARTMENT OF PHILOSOPHY.

- Nov. 3, 1891. John S. Billings, M.D., LL.D., to be Professor of Hygiene.
- “ “ Felix E. Schelling, A.M., to be Professor of English.
- “ “ Edmund D. Cope, Ph.D., to be Professor of Palæontology.
- “ “ George Horn, M.D., to be Professor of Entomology.

GRADUATE DEPARTMENT FOR WOMEN.

- Oct. 6, 1891. Miss Ida Wood, Ph.D., to be Secretary.

ANNUAL, OR FOR A PERIOD LESS THAN TWO YEARS.

COLLEGE DEPARTMENT.

June 3, 1890.	Randolph Faries, M.D., to be Director of Physical Education.
Oct. 6, 1891.	
Sept. 13, 1892.	
June 3, 1890.	Hugo A. Rennert, B.S., to be Instructor in French and German.
June 23, 1891.	
June 3, 1890.	Benjamin Franklin, B.S., C.E., to be Instructor in Civil Engineering.
June 23, 1891.	
June 3, 1890.	Charles Herman Haupt, B.S., C.E., to be Instructor in Civil Engineering.
June 23, 1891.	
June 3, 1890.	Milton J. Greenman, Ph.B., to be Instructor in General Biology.
June 23, 1891.	
June 3, 1890.	Roland P. Falkner, Ph.B., to be Instructor in Accounting and Statistics.
June 3, 1890.	
June 23, 1891.	Lee K. Frankel, B.S., P.C., to be Instructor in Analytical Chemistry.
June 4, 1892.	
June 3, 1890.	Charles Meredith Burk, M.D., to be Instructor in Zoölogy.
June 23, 1891.	
June 4, 1892.	
June 3, 1890.	Francis Newton Thorpe, Ph.D., to be Lecturer on American History.
June 3, 1890.	
June 23, 1891.	William R. Newbold, A.B., to be Lecturer on Philosophy and Instructor in Latin.
Sept. 13, 1892.	
June 3, 1890.	Daniel B. Shumway, B.S., to be Instructor in English.
June 23, 1891.	
June 4, 1892.	
June 3, 1890.	Amos Peaslee Brown, B.S., E.M., to be Instructor in Mining and Metallurgy.
June 23, 1891.	
June 23, 1891.	David R. Griffith, to be Instructor in Mechanical Engineering.
June 4, 1892.	
June 3, 1890.	George F. Stradling, A.B., to be Instructor in Physics.
June 23, 1891.	
June 3, 1890.	Lewis L. Forman, A.M., to be Instructor in Greek.
June 23, 1891.	
June 3, 1890.	Lightner Witmer, A.B., to be Assistant in Psychology.
June 23, 1891.	
June 4, 1892.	

- June 3, 1890. H. F. Keller, B.S., to be Instructor in General and Organic Chemistry.
- June 3, 1890. J. A. Montgomery, A.B., to be Instructor in Hebrew.
- Oct. 6, 1891. Randolph Faries, M.D., to be Director of Physical Education.
- Sept. 13, 1892.
- June 3, 1890. J. Orie Clark, to be Instructor in Drawing.
- June 3, 1890. J. Percy Moore, to be Assistant Instructor in Zoölogy.
- June 23, 1891.
- June 4, 1892.
- June 3, 1890. John Harshberger, to be Assistant Instructor in Analytical Botany.
- June 23, 1891.
- Dec. 6, 1892.
- Dec. 1, 1891. Frank Miles Day, B.S., to be Lecturer on Architecture.
- Dec. 1, 1892.
- Dec. 1, 1891. Wilson Eyre, Jr., to be Lecturer on Architecture; Instructor in Pen and Ink Drawing.
- June 4, 1892.
- Dec. 6, 1892.
- Dec. 1, 1891. Barr Ferree, B.S., to be Lecturer on Architecture.
- Dec. 6, 1892.
- Dec. 1, 1891. Frank Furness, to be Lecturer on Architecture.
- June 4, 1892.
- Dec. 1, 1891. Addison Hutton, to be Lecturer on Architecture.
- June 4, 1892.
- Dec. 1, 1891. John Stewardson, to be Lecturer on Architecture.
- Dec. 6, 1892.
- Dec. 1, 1891. Joseph M. Wilson, to be Lecturer on Architecture.
- June 4, 1892.
- Nov. 4, 1890. Edwin R. Keller, B.S., M.E., to be Instructor in Mechanical Engineering.
- June 23, 1891.
- Nov. 4, 1890. Clayton W. Pike, B.S., to be Instructor in Electrical Engineering.
- June 23, 1891.
- Nov. 4, 1890. James D. Steele, A.M., LL.B., to be Instructor in Hebrew.
- Nov. 4, 1890. Walter J. Keith, Ph.G., to be Instructor in General Chemistry.
- June 23, 1891.
- June 4, 1892.
- June 23, 1891. J. J. Morris, to be Assistant Instructor in Mechanical Engineering.
- June 4, 1892.
- Feb. 3, 1891. David Jayne Bullock, to be Assistant Instructor in Zoölogy and Curator.

- April 7, 1891. James Harvey Robinson, to be Lecturer on Euro-
 June 4, 1892. pean History.
 June 2, 1891. Arthur B. Woodford, Ph.D., to be Instructor in
 Political Science.
 June 23, 1891. Hugh Walker Ogden, A.B., to be Instructor in
 June 4, 1892. Latin.
 Oct. 6, 1891. Frederick W. Moore, Ph.D., to be Instructor in
 Sociology.
 " " Sidney Sherwood, Ph.D., to be Instructor in
 Finance.
 " " L. K. Stein, A.M., to be Assistant in the Wharton
 School.
 " " Julian Millard, to be Instructor in Architecture.
 June 4, 1892. Julius Ohly, Ph.D., to be Instructor in Chemistry.
 June 23, 1891. James Clark Irwin, B.S., C.E., to be Instructor in
 Civil Engineering.
 Oct. 6, 1891. George Francis James, A.M., to be Lecturer on
 Modern Literature.
 " " Walter B. Skaife, Ph.D., to be Lecturer on Modern
 History.
 " " Albert S. Bolles, Ph.D., to be Lecturer on Banking
 Law and Practice.
 Nov. 3, 1891. Willis Boughton, Ph.D., to be Lecturer on English.
 June 4, 1892. Edmund A. Stewardson, to be Instructor in Mod-
 eling.
 Sept. 13, 1892. Homer Smith, A.M., to be Instructor in English.
 " " Robert Bealle Burke, A.B., to be Instructor in
 Greek.
 " " Josiah Harmar Penniman, A.B., to be Instructor in
 English.
 " " Herbert E. Everett, to be Instructor in Drawing.
 " " John Quincy Adams, Ph.B., to be Instructor in
 Political Science.
 " " Joseph Adna Hill, Ph.D., to be Lecturer on
 Finance.
 " " Abraham H. Wintersteen, to be Lecturer on Busi-
 ness Law.
 Oct. 4, 1892. Rev. Leverett Bradley, to be Chaplain.
 Nov. 1, 1892. Walter L. Webb, C.E., to be Instructor in Civil
 Engineering.

Nov.	1, 1893.	Charles Worthington, C.E., to be Instructor in Civil Engineering.
"	"	A. William Schramm, B.S., M.E., to be Instructor in Electrical Engineering.
"	"	H. W. Huffington (U. S. N. A.), to be Instructor in Mechanical Engineering.
"	"	Lucien E. Picolet, to be Instructor in Mechanical Engineering.
"	"	William J. Shields, A.M., to be Instructor in Physics.
Dec.	6, 1892.	James Warrington, to be Instructor in Accounting.

MEDICAL DEPARTMENT.

June	3, 1890.	Adolph W. Miller, M.D., to be Lecturer on Materia Medica and Pharmacy.
May	5, 1891.	
June	4, 1892.	Roland G. Curtin, M.D., to be Lecturer on Physical Diagnosis.
June	3, 1890.	
May	5, 1891.	Charles K. Mills, M.D., to be Lecturer on Mental Diseases.
June	4, 1892.	
June	3, 1890.	Samuel D. Risley, M.D., to be Instructor in Ophthalmology.
Jan.	6, 1891.	Samuel D. Risley, M.D., to be Lecturer on Ophthalmology.
May	5, 1891.	
June	4, 1892.	Henry F. Formad, M. D., to be Demonstrator of Morbid Anatomy and Pathological Histology, and Lecturer on Experimental Pathology.
June	3, 1890.	
May	5, 1891.	Carl Seiler, M.D., to be Instructor in Laryngology.
June	4, 1892.	
June	3, 1890.	Albert L. A. Tolboldt, M.D., to be Assistant Instructor in Practical Pharmacy.
May	5, 1891.	
June	4, 1892.	Henry R. Wharton, M.D., to be Demonstrator of Surgery, and Lecturer on Surgical Diseases of Children.
June	3, 1890.	
May	5, 1891.	
June	4, 1892.	

June 3, 1890.	John B. Deaver, M.D., to be Demonstrator of
May 5, 1891.	Anatomy, and Lecturer on Topographical Anatomy.
June 3, 1890.	Francis X. Dercum, M.D., to be Instructor in
May 5, 1891.	Nervous Diseases.
June 3, 1890.	Hobart A. Hare, M.D., Lecturer on Physical Diagnosis, and Demonstrator of Experimental Therapeutics.
June 3, 1890.	Thomas R. Neilson, M.D., to be Assistant Demonstrator of Anatomy and Instructor of Genito-Urinary Diseases.
May 5, 1891.	
Jan. 5, 1892.	
June 4, 1892.	Thomas R. Neilson, M.D., to be Lecturer on Diseases of the Rectum.
June 3, 1890.	Edward W. Holmes, M.D., to be Assistant Demonstrator of Anatomy.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	Richard H. Harte, M.D., to be Demonstrator of Osteology.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	Judson Daland, M.D., to be Instructor in Clinical Medicine.
May 5, 1891.	
June 4, 1892.	
June 4, 1890.	John B. Deaver, M.D., to be Lecturer on Topographical Anatomy and Demonstrator of Anatomy.
June 3, 1890.	J. P. Crozer Griffith, M.D., to be Instructor in Clinical Medicine.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	William H. Taylor, M.D., to be Instructor in Clinical Gynæcology.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	Gwilym G. Davis, M.D., to be Assistant Demonstrator of Surgery.
May 5, 1891.	
June 4, 1882.	
June 3, 1890.	Edward Martin, M.D., to be Instructor in Clinical and Operative Surgery, and Lecturer on Emergency Surgery.
May 5, 1891.	
June 4, 1892.	
Nov. 5, 1889.	
June 3, 1890.	W. Frank Haehnlen, M.D., to be Instructor in and Lecturer on Clinical and Operative Obstetrics.
May 5, 1891.	
June 4, 1892.	

- June 3, 1890. John K. Mitchell, M.D., to be Instructor in
 May 5, 1891. Clinical Medicine.
 June 4, 1892.
- June 3, 1890. George H. Chambers, M.D., to be Assistant
 May 5, 1891. Demonstrator of Normal Histology.
 June 4, 1892.
- June 3, 1890. James K. Young, M.D., to be Assistant Demonstra-
 May 5, 1891. tor of Surgery, and Instructor in Orthopædic
 June 4, 1892. Surgery.
- June 3, 1890. Henry W. Cattell, M.D., to be Assistant Demon-
 May 5, 1891. strator of Chemistry.
 June 4, 1892.
- Sept. 13, 1892. Henry W. Cattell, M.D., to be Demonstrator of
 Morbid Anatomy.
- Nov. 5, 1889. John B. Roberts, M.D., to be Lecturer on Anatomy.
 June 3, 1890.
- June 3, 1890. Allen J. Smith, M.D., to be Assistant Demonstrator.
 May 5, 1891. of Morbid Anatomy and Pathological Histology,
 and Lecturer on Urinology.
- June 3, 1890. Arthur A. Stevens, M.D., to be Instructor in
 May 5, 1891. Physical Diagnosis.
 June 4, 1892.
- June 3, 1890. Benjamin F. Stahl, M.D. to be Instructor in Physi-
 May 5, 1891. cal Diagnosis.
 June 4, 1892.
- May 5, 1891. George E. De Schweinitz, M.D., to be Lecturer on
 June 4, 1892. Ophthalmology.
- Nov. 5, 1889. Harry C. Deaver, M.D., to be Assistant Demonstra-
 June 30, 1890. tor of Anatomy.
 June 4, 1892.
- June 3, 1890. John C. Heisler, M.D. to be Prosector to the
 Dec. 2, 1890. Professor of Anatomy; to be Assistant Demon-
 May 5, 1891. strator of Obstetrics.
 June 4, 1892.
- June 3, 1890. Charles B. Penrose, M.D., to be Instructor in
 Clinical Surgery.
- June 3, 1890. Walter D. Green, M.D., to be Assistant Demon-
 May 5, 1891. strator of Surgery.
 June 4, 1892.
- June 3, 1890. Walter Chrystie, M.D., to be Instructor in Physical
 Diagnosis.

June 3, 1890.	Frederick A. Packard, M.D., to be Instructor in Physical Diagnosis.
May 5, 1891.	
June 4, 1892.	
Nov. 5, 1889.	
June 3, 1890.	Richard C. Norris, M.D., to be Demonstrator of Obstetrics.
May 5, 1891.	
June 4, 1892.	
Dec. 2, 1890.	J. Aubrey Davis, M.D., to be Assistant Demonstrator of Obstetrics.
May 5, 1891.	
June 4, 1892.	
Nov. 5, 1889.	
June 3, 1890.	John L. Hatch, M.D., to be Assistant Demonstrator of Morbid Anatomy and Pathological Histology.
May 5, 1891.	
Nov. 3, 1891.	
June 4, 1892.	
Jan. 7, 1890.	
June 3, 1890.	William B. Jamison, M.D., to be Assistant Demonstrator of Anatomy.
May 5, 1891.	
June 4, 1892.	
Feb. 4, 1890.	
June 3, 1890.	Milton B. Hartzell, M.D., to be Instructor in Dermatology.
May 5, 1891.	
June 4, 1892.	
April 1, 1890.	W. Constantine Goodell, M.D., to be Instructor in Clinical Gynæcology ; to be Instructor in Gynæcology.
Nov. 3, 1891.	
June 4, 1892.	
Mar. 4, 1890.	
June 3, 1890.	Charles D. Potts, M.D., to be Instructor in Electro-Therapeutics.
May 5, 1891.	
June 4, 1892.	
Nov. 3, 1891.	James M. Brown, M.D., to be Instructor in Otology.
June 4, 1892.	
Feb. 3, 1891.	Joseph Leidy, M.D., to be Assistant Demonstrator of Morbid Anatomy and Pathological Histology.
May 5, 1891.	
Nov. 3, 1891.	
Nov. 4, 1890.	David Cerna, M.D., to be Assistant of Physiology and Demonstrator of Experimental Therapeutics.
May 5, 1891.	
Nov. 3, 1891.	
Mar. 1, 1892.	Lecturer on Experimental Therapeutics.
June 4, 1892.	

May 5, 1891.	Robert Formad, M.D., to be Assistant Demonstrator of Normal Histology ; to be Demonstrator of Histology.
June 2, 1891.	
June 4, 1892.	
Nov. 4, 1890.	Walter J. Pennock, M.D., to be Assistant Demonstrator of Anatomy.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	Leon Brinkmann, M.D., to be Assistant Demonstrator of Anatomy.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	John A. Boyer, M.D., to be Assistant Demonstrator of Anatomy.
May 5, 1891.	
June 4, 1892.	
May 5, 1891.	J. Howard Reeves, M.D., to be Instructor in Laryngology.
June 4, 1892.	
June 4, 1892.	Herman B. Allyn, M.D., to be Instructor in Physical Diagnosis.
June 2, 1891.	James Wallace, M.D., to be Instructor in Ophthalmology.
Nov. 3, 1891.	William Schleif, M.D., to be Assistant Demonstrator of Pharmacy.
June 4, 1892.	
Nov. 3, 1891.	William S. Carter, M.D., to be Assistant in Physiology.
June 4, 1892.	
May 5, 1891.	Charles G. Stivers, M.D., to be Assistant Demonstrator of Histology.
June 4, 1892.	Guy Hinsdale, M.D., to be Lecturer on Climatology.
Jan. 5, 1892.	M. Howard Fussell, M.D., to be Instructor in Clinical Medicine.
June 4, 1892.	
Jan. 5, 1892.	Samuel W. Morton, M.D., to be Instructor in Clinical Medicine.
June 4, 1892.	
Jan. 5, 1892.	Alfred C. Wood, M.D., to be Instructor in Clinical Surgery.
June 4, 1892.	
June 4, 1892.	Charles L. Leonard, M.D., to be Assistant Instructor in Clinical Surgery.
March 1, 1891.	George C. Stone, M.D., to be Assistant Demonstrator of Histology.
June 4, 1892.	
Jan. 5, 1892.	Ellwood R. Kirby, M.D., to be Assistant Instructor in Clinical Medicine.
June 4, 1892.	
Jan. 5, 1892.	Charles S. Leonard, M.D., to be Assistant Instructor in Clinical Medicine.
June 4, 1892.	

Jan.	6, 1892.	Joseph McFarland, M.D., to be Assistant Demonstrator of Pathological Histology.
June	4, 1892.	
Sept.	13, 1892.	Joseph McFarland, M.D., to be Demonstrator of Pathological Histology.
June	4, 1892.	John H. Riera, M.D., to be Assistant to the Professor of Gynæcology.
"	"	Carl A. Hamann, M.D., to be Assistant Demonstrator of Anatomy.
"	"	Robert G. J. Mitcheson, M.D., to be Assistant Demonstrator of Anatomy.
"	"	William W. Ashhurst, M.D., to be Assistant Demonstrator of Surgery.
Nov.	1, 1892.	David B. Birney, M.D., to be Assistant Demonstrator of Surgery.
"	"	Joseph P. Tunis, M.D., to be Assistant Demonstrator of Surgery.
Dec.	6, 1892.	John L. Wethered, M.D., to be Assistant Demonstrator of Pathological Histology.

AUXILIARY DEPARTMENT OF MEDICINE.

Nov.	4, 1890.	John J. Reese, M.D., to be Professor of Medical Jurisprudence and Toxicology.
Nov.	4, 1890.	Joseph T. Rothrock, M.D., to be Professor of
Nov.	3, 1891.	Botany.
Nov.	4, 1890.	Joseph Leidy, M.D., LL.D., to be Professor of Comparative Anatomy and Zoölogy.
Nov.	4, 1890.	Edward D. Cope, Ph.D., to be Professor of Mineralogy and Geology.
Nov.	5, 1889.	Samuel G. Dixon, M.D., to be Professor of Hygiene.
Nov.	3, 1891.	William Powell Wilson, Sc.D., to be Professor of the Anatomy and Physiology of Plants.
Nov.	4, 1890.	Seneca Egbert, M.D., to be Lecturer on Hygiene.
June	2, 1891.	Harrison Allen, M.D., to be Professor of Comparative Anatomy and Zoölogy.
Nov.	3, 1891.	
Nov.	3, 1891.	John S. Billings, M.D., LL.D., to be Professor of Hygiene.

DEPARTMENT OF DENTISTRY.

June 3, 1890.	Robert Huey, D.D.S., to be Lecturer on Operative Dentistry.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	William Diehl, D.D.S., to be Demonstrator of Operative Dentistry.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	James E. Loder, D.D.S., to be Assistant Demonstrator of Operative Dentistry.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	Harry B. McFadden, D.D.S., to be Demonstrator of Mechanical Dentistry.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	Ambler Tees, Jr., D.D.S., to be Assistant Demonstrator of Mechanical Dentistry; to be Demonstrator of Continuous Gum Work.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	Joseph W. White, D.D.S., to be Assistant Demonstrator of Operative Dentistry..
May 5, 1891.	
June 3, 1890.	R. Hamill D. Swing, D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	Frederick W. Amend, D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	Horace McCanna, D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.
May 5, 1891.	
June 3, 1890.	J. Edward Dunwoody, D.D.S., to be Assistant Demonstrator of Operative Dentistry.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	Edward C. Kirk, D.D.S., to be Lecturer on Operative Dentistry.
May 5, 1891.	
June 4, 1892.	
June 3, 1890.	John G. Fuller, D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.
June 3, 1890.	
May 5, 1891.	Charles A. E. Codman, D.D.S., to be Assistant Demonstrator of Operative Dentistry.
June 4, 1892.	
June 3, 1890.	Frederick A. Peeso, D.D.S., to be Assistant Demonstrator of Mechanical Dentistry; to be Demonstrator of Crown and Bridge Work.
May 5, 1891.	
June 4, 1892.	

June 3, 1890.	John D. Thomas, D.D.S., to be Lecturer on Nitrous Oxide.
May 5, 1891.	
June 4, 1892.	
Jan. 7, 1890.	Luther M. Weaver, D.D.S., to be Assistant Demonstrator of Operative Dentistry.
Dec. 2, 1890.	
May 5, 1891.	James G. Lane, D.D.S., to be Assistant Demonstrator of Crown and Bridge Work.
June 4, 1892.	
June 3, 1890.	
May 5, 1891.	Milton N. Keim, D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.
June 4, 1892.	
June 4, 1892.	C. Herbert Wilson, D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.
" "	Edward W. Holmes, D.D.S., M.D., to be Demonstrator of Anatomy.
" "	Robert Formad, V.M.D., to be Demonstrator of Histology.

VETERINARY DEPARTMENT.

Dec. 3, 1889.	Robert Formad, V.M.D., to be Demonstrator of Histology.
" "	Guldin R. Hartman, V.M.D., to be Demonstrator of Anatomy.
June 3, 1890.	Charles Williams, V.M.D., to be Lecturer on the Practice of Veterinary Medicine.
Nov. 4, 1890.	
June 2, 1891.	Alexander Glass, V.M.D., to be Lecturer on Therapeutics and Materia Medica.
June 14, 1892.	
Nov. 4, 1890.	Henry F. Formad, M.D., to be Demonstrator of Pathology and Morbid Anatomy.
June 2, 1891.	
Nov. 4, 1890.	Chalkley H. Magill, V.M.D., to be Demonstrator of Veterinary Surgery.
June 2, 1891.	
June 14, 1892.	
Nov. 4, 1890.	Robert Formad, V.M.D., to be Lecturer on Sanitary Science and Demonstrator of Normal History.
June 2, 1891.	
June 14, 1892.	Edgar H. Landes, V.M.D., to be Demonstrator of Veterinary Anatomy.
Nov. 4, 1890.	
Nov. 4, 1890.	
June 2, 1891.	Edwin S. Muir, Ph.G., V.M.D., to be Demonstrator of Pharmacy.
June 14, 1892.	

- Nov. 4, 1890. William H. Ridge, V.M.D., to be Demonstrator of
 June 2, 1891. Veterinary Obstetrics.
 June 14, 1892.
 Nov. 4, 1890. Jeremiah P. Zuill, V.M.D., to be Assistant Demon-
 strator of Veterinary Anatomy.
 " " Garrett Edwards, to be Farrier.
 Nov. 3, 1890. Leo Breisacher, V.M.D., to be Demonstrator of
 June 14, 1892. Comparative Physiology.
 Nov. 3, 1891. Harry D. Entrikin, V.M.D., to be Demonstrator of
 Veterinary Anatomy.
 " " B. Frank Senseman, V.M.D., to be Assistant Demon-
 strator of Veterinary Anatomy.
 June 14, 1892.
 Nov. 3, 1891. Zachariah R. Scholl, to be Demonstrator of Forging
 June 14, 1892. and Horseshoeing.

LAW DEPARTMENT.

- April 7, 1891. George Stuart Patterson, to be Fellow.
 " " Charles Cooper Townsend, to be Fellow.
 Oct. 4, 1892. George Wharton Pepper, LL.B., to be Algernon
 Sidney Biddle Fellow.

DEPARTMENT OF HYGIENE.

- June 4, 1892. James Homer Wright, M.D., to be Thomas A. Scott
 Fellow in Hygiene.

APPENDIX II.

REPORT OF THE DEAN OF THE COLLEGE FACULTY.

TO THE PROVOST.

DEAR SIR: I have the honor to present my report as Dean of the College Faculty, covering the period from the close of the first term of the year 1889-90, to the beginning of the second term of the present year, 1892-93. The following tables show the number of students in college during that time, and their rank and distribution among the different courses:

UNIVERSITY OF PENNSYLVANIA : STUDENTS IN THE COLLEGE.

	1890-91.			1891-92.			1892-93.		
	Regu- lar.	Special or Partial.	Total.	Regu- lar.	Special or Partial.	Total.	Regu- lar.	Special or Partial.	Total.
ARTS :									
Freshmen,	44	4	48	24	8	32	28	1	29
Sophomores,	21	6	27	32	4	36	18	3	21
Juniors,	17	4	21	18	4	22	24	1	25
Seniors,	23	2	25	12	4	16	18	1	19
			121			106			94
SCIENCE :									110
Freshmen,	47	13	60	43	19	62	68	7	75
Sophomores,	38	20	58	33	11	44	34	8	42
			118			106			117
TECHNICAL COURSES :									99
<i>Freshmen.</i>									
In Chemistry,							3		3
In Civil Engineering,									
In Mechanical Engineering,							18	4	22
In Architecture,				4	9	13	10	1	11
						13			36
<i>Sophomores.</i>									
In Chemistry,									
In Civil Engineering,									
In Mechanical Engineering,									
In Architecture,				4	1	5	5	2	7
						5			8
									34

UNIVERSITY OF PENNSYLVANIA: STUDENTS IN THE COLLEGE—CONTINUED.

	1889-90.			1890-91.			1891-92.			1892-93.		
	Regu- lar.	Special or Partial	Total.	Regu- lar.	Special or Partial	Total.	Regu- lar.	Special or Partial	Total.	Regu- lar.	Special or Partial	Total.
<i>Juniors.</i>												
In Chemistry,	1	3	4	1	14	15	6	17	23	5	6	11
In Mining,	1	4	5	..	4	4	..	5	5	..	..	..
In Civil Engineering,	5	6	11	7	5	12	8	5	13	10	2	12
In Mechanical Engineering,	5	5	10	12	12	24	18	5	23	14	5	19
In Architecture,	1	2	3	3	1	4	3	3	6	4	2	6
			33			59			70			48
<i>Seniors.</i>												
In Chemistry,	5	6	11	..	4	4	2	8	10	8	12	20
In Mining, . . . . .	..	3	3	1	2	3	1	1	2	..	..	..
In Civil Engineering,	4	9	13	6	7	13	11	1	12	6	4	10
In Mechanical Engineering,	8	1	9	4	4	8	12	7	19	15	5	20
In Architecture, . . . . .	..	2	2	1	6	7	2	2	4	3	..	3
			38			35			47			53
<i>Post-Seniors.</i>												
In Chemistry,	3	2	5	..	5	5	..	..	..	2	5	7
In Mining, . . . . .	..	1	1	..	..	..	1	..	1	..	..	..
In Civil Engineering,	4	2	6	3	2	5	3	2	5	3	2	5
In Mechanical Engineering,	2	..	2	7	..	7	3	1	4	9	..	9
In Architecture, . . . . .	..	..	..	..	..	..	..	..	..	..	..	..
			14			17			10			21
WHARTON SCHOOL:												
Juniors,	14	13	27	12	4	16	26	15	41	11	21	32
Seniors,	7	3	10	9	6	15	11	1	12	23	11	34
						31			53			66

The following table shows the number of instructors and students in each year for the last twenty years :

YEAR	73-74	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83
Instructors,	28	31	32	34	34	33	36	30	24	56
Students,	215	215	240	236	264	279	286	296	335	356

YEAR	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93
Instructors,	31	38	39	42	47	48	56	68	75	88
Students,	416	381	388	375	352	406	430	479	565	616

It will be noticed that the growth of the College has been marked and continuous, from 430 to 616 in three years, and that this increase, with few exceptions, is due to growth of all departments. The Course in Arts apparently has not shared in this general progress, but with some variations (97, 109, 121, 106, 94, 110) has remained stationary. It should be remembered that the schools of Biology and Finance and Economy are closely related to the Arts Course and are elective to Juniors in Arts, so that a proportion of the students now in these courses, having spent the earlier years in the Arts Course, may be properly regarded as in the department. The students in the Science courses have increased in numbers from 203 to 373. In 1889-90, 85 of the 203 were taking technical scientific courses ; of the 373 now on the rolls, 224 are taking technical courses. This increase is due in part to the establishment of the four year technical courses, which have drawn away from the five year course in General Science, as will be noticed from the fact that while the Freshman class, as a whole, is larger than ever, the number of Freshmen in the General Science Course has fallen from 75 last year to 39, about the whole number for 1887-88, and that the Freshmen in the technical courses proper have increased from 13, in 1890, to 69.

The following table presents a recapitulation of the students in the technical scientific courses, for a period covered by the last four years :

RECAPITULATION.	1889-90	1890-91	1891-92	1892-93
Technical Students,				
In Arts,	121	106	94	110
In Chemistry,	19	24	36	55
In Civil Engineering,	30	30	30	39
In Mechanical Engineering,	21	39	69	85
In Architecture,	5	30	53	58

The Wharton School has nearly doubled in numbers since 1888, and now reaches 66. The Course in Natural History has increased from 5 to 8. The special two year course in Biology Preparatory to Medicine increased in 1890-91 from 44 to 65, and fell off last year to 56, and again this year to 44. This loss, which was less than the radical change introduced by the lengthening of the Medical Course, led us to expect, is more than made up by the increased number of students in the other College departments electing courses in Biology. The students in Music have just doubled in numbers during the last three years.

The number of new students admitted at the beginning of the present year is 219; of these 146 are pursuing the work of the Freshman class, the remaining were admitted to advanced standing or to the special courses in Biology, Music and Architecture. In 1887-88 the Freshman class numbered 69.

The following table shows the growth of the Freshman class during the past four years:

	1889-90	1890-91	1891-92	1892-93
FRESHMEN: (Including Partial Students working with Freshmen class, but excluding Special Students in Biology, Archi- tecture and Music.)	113	109	140	146

It is interesting to note that the increase in the whole number of students is associated with an increase in the number who come to us from places outside of Philadelphia. In 1889-90, 21 per cent. of the undergraduates were not residents of Philadelphia. This class has increased to 23 per cent. in 1890-91, 27 per cent. in 1891-92 and 30 per cent. in 1892-93.

There are this year 186 such students in the College, of which number 96 are from Pennsylvania and the rest from 21 other States and Territories and 5 foreign countries.

The following is a list of the schools at which the matriculates have been prepared for college. The number received each year since 1889 is also given:

NAME OF INSTITUTION (OR TUTOR) FROM WHICH STUDENT CAME.	YEAR OF MATRICULATION.			
	1889	1890	1891	1892
Abington Friends' School, Pennsylvania				1
Altoona High School, Pennsylvania			1	
Amherst College, Massachusetts			1	1
Robert Andersen, Philadelphia				1
Ardmore High School, Philadelphia				1
Arms' Academy, Douglassville, Pa				1
Baltimore City College, Baltimore, Md	1			
Loring W. Batten, Philadelphia	1			
W. S. Blight's School, Philadelphia		2	1	
Alonzo Brown's School, Philadelphia	2	2	9	4
H. H. Brown's School, Philadelphia	2	7	3	6
R. B. Burke, Philadelphia			1	
W. H. Burk, Philadelphia				1
Bucknell College	1			3
Baltimore Training College, Baltimore, Md				1
Bloomfield (N. J.) High School				1
Buchtel College				1
Canada (Upper) College, Toronto, Canada	2			
Ralph Carson, Philadelphia			1	
Central High School, Philadelphia	8	13	20	17
Cheltenham Academy, Philadelphia	2	2	1	
Cheltenham Hills Select School, Pennsylvania			1	
Chester High School		1		1
Edward P. Cheney, Philadelphia	1	1		
Chickering Institute, Cincinnati, O.			1	
Classical Gymnasium, Sophia, Bulgaria			1	
Columbia University			1	
Cowelland School, Lakewood, N. J.	1			
Edwin S. Crawley, Philadelphia, Pa.			2	
Cedar Rapids (Iowa) High School				2
Carlisle Normal School, Philadelphia				1
Cornell University				2

NAME OF INSTITUTION (OR TUTOR) FROM WHICH STUDENT CAME.	YEAR OF MATRICU- LATION.			
	1889	1890	1891	1892
Devoe College			1	
Dennison University		1		
Dickinson College, Pennsylvania	1	1		
Dickinson Seminary, Pennsylvania				1
Downingtown High School			1	
Dieckmann School, Baltimore, Md.			1	
De Pauw University				2
Academy of the P. E. Church, Philadelphia	8	10	8	13
Eastburn's Academy, Philadelphia	6	5	5	6
Exeter Academy, Massachusetts				1
Friends' Central School, Philadelphia	4	6	8	2
Fort Wayne High School, Pennsylvania			1	
Friends' Boarding School, Providence, R. I.		1		
Rev. H. T. B. Farr, S. J., Philadelphia			1	
Forsythe School, Philadelphia		1		4
Franklin School, Germantown, Philadelphia			4	4
Farnum School, Beverly, N. J.				1
Friends' School, Germantown, Philadelphia				2
Franklin and Marshall College, Pennsylvania				1
Friends' School, Wilmington, Del.				1
Germantown Academy, Philadelphia	8	5	12	4
Genesee Normal School			1	
Gloucester High School, N. J.		1		
P. H. Goep, Philadelphia			1	
H. L. Gilbert, Philadelphia				1
Girard College	1		1	1
Hackettstown School, Pennsylvania	1			
G. D. Hale, Philadelphia			1	
Havana University, Cuba				1
Hillman Academy				1
Hamilton School, Philadelphia	5		1	1
Haverford College Grammar School, Pennsylvania	2	2	2	4
Heacock's School	2			
Holy Cross College	1			
W. H. Hunter, Philadelphia			1	
Harrisburg High School, Pennsylvania				1
C. H. Haupt, Philadelphia				3
Dr. John H. Habel, Philadelphia				1
F. S. Ireland, New York		1		
Indiana State Normal, Indiana, Pa		1		
Jefferson Grammar School, Philadelphia			1	
J. W. Jordens, Philadelphia			3	1
Illinois Normal University				1
Jenkintown Normal School				1
Kansas University			1	1
E. Otis Kendall, Philadelphia		1		
C. F. Kendrick	1			
Miss S. A. Knight	2			
William Kelley, Philadelphia				1

NAME OF INSTITUTION (OR TUTOR) FROM WHICH STUDENT CAME.	YEAR OF MATRICU- LATION.			
	1889	1890	1891	1892
Lackawanna School, Scranton, Pa			1	...
Lafayette College, Pennsylvania	2	...	1	1
La Salle College, Pennsylvania	3	3	...	...
Lauderbach Academy, Philadelphia	3	5	2	3
Lawrenceville School, N. J.	1	2	3	1
Lehigh University, Pennsylvania	2	2	3	...
Lincoln University		1	...	...
S. M. Lindsay, Philadelphia		1	...	...
Little Falls Academy, N. Y.			1	...
Lebanon High School	1	...	...	...
J. H. Maher, Philadelphia	1	4	...	1
Manual Training School, Philadelphia	19	18	13	11
Martin's School, West Philadelphia	2	4	13	1
Massachusetts Institute of Technology, Boston, Mass	...	...	1	...
Minnesota University	...	...	1	...
G. D. Morrell, Philadelphia	1	...	...	1
Mt. Holly Academy, N. J.		1	...	...
Muhlenberg College, Pennsylvania	3	...	...	...
Mt. St. Mary's College	...	...	...	1
Marston's University School, Baltimore, Md	...	...	...	1
Milwaukee Academy, Wisconsin	...	...	...	1
Mahanoy High School	...	...	...	1
New Jersey State Model School	...	...	1	...
Frederick M. Noa	1	...	...	...
Normal School, Philadelphia	...	...	1	...
Norristown High School, Pennsylvania	...	2	1	1
Northampton High School, Pennsylvania	...	1	...	...
Northeast High School, Pennsylvania	...	1	...	...
Newton Grammar School	...	...	...	1
Nashotah Seminary	...	...	...	1
Ohio Wesleyan University	...	...	1	...
C. D. Oberdorf, Sunbury, Pa	...	...	...	1
Paterson High School, N. J.	...	...	1	...
Pennsylvania State College, Pennsylvania	...	...	1	1
Pennsylvania Institute for the Blind	2	...	...	...
Pennsylvania Military College	1	...	...	...
Pittsburgh High School	1	...	...	...
G. T. Plitt, Philadelphia	1	...	...	...
Polytechnic College, Philadelphia	...	...	1	...
Polytechnic Institute, Brooklyn, N. Y.	...	1	1	...
Pottstown High School, Pennsylvania	...	...	2	...
Princeton College	...	...	3	1
Providence Grammar School, R. I.	...	...	1	...
Pennington Seminary	...	...	...	2
Matthew Patton, Philadelphia	...	...	...	1
Peekskill Military Academy, N. Y.	...	...	...	1
Park Avenue Grammar School, Philadelphia	...	...	...	1
Philadelphia Elective College	...	...	...	1
W. A. Reynolds, Philadelphia	1	1	1	...

NAME OF INSTITUTION (OR TUTOR) FROM WHICH STUDENT CAME.	YEAR OF MATRICU- LATION.			
	1889	1890	1891	1892
Robert P. Robins, Philadelphia	2			
Rogers' High School, Newport, R. I.		1		
Rittenhouse Academy, Philadelphia	4		6	5
Rugby Academy, Philadelphia	11	6	7	12
W. L. Roney, Philadelphia	1		1	
Edward Roth, Philadelphia	1			1
A. W. Rosser, Philadelphia				1
Reading High School, Pennsylvania				2
Richmond College, Virginia				1
Hugo A. Rennert, Philadelphia				1
St. Austin School, S. J.		1		
College of St. James' Grammar School		1		
St. Luke's Academy, Bustleton, Pa.	4			1
St. Paul's School, Concord, N. H.	2	1		1
San Antonio Public School, Texas			1	
M. E. Scheibner, Philadelphia			1	1
Scranton High School, Pennsylvania	1			
Sedgwick Institute, Barrington, Mass.			1	
Shortlidge's Media Academy, Pennsylvania	1			
South Jersey Institute			2	1
Swarthmore College, Pennsylvania		1	1	3
Swarthmore Preparatory School, Pennsylvania			1	
D. G. J. Schadt, Philadelphia				1
St. John's College, Fordham, N. Y.				1
G. Storrie, Philadelphia				1
Temple College, Philadelphia				1
Towanda High School, N. J.				1
Trenton High School, N. J.			1	
Trinity Hall, Washington, Pa.				1
Ulrich Preparatory School			1	
A. N. Ulrich, Catasauqua, Pa.		1		
Ursinus College, Pennsylvania			1	
University of Virginia			1	1
Vermont Methodist Seminary				1
University of Wooster				1
James N. Walker, Philadelphia		2		
T. H. Walls, Philadelphia	1	1		
West Chester State Normal	1		1	3
Westtown Boarding School, Pennsylvania			1	
Chas. Wieland, Philadelphia			1	
James F. Willis				1
West Jersey Academy				1
William Penn Charter School, Philadelphia	7	12	13	13
F. M. Wright, Philadelphia			1	
S. B. Wylie, Philadelphia	1			
Wyoming Seminary		1	1	1
Western Normal School				1
Yale University			2	
York College Institute				1

The requirements for admission to the Courses in Science and Arts remain practically unchanged, but there is no longer a separate examination upon English Etymology. We have every reason to be satisfied with the requirements; they are sufficiently exacting, and the examinations are carefully and thoroughly conducted.

As the question of admission by certificate is under consideration, it does not seem proper to refer to it in this report.

The Course in Arts has been changed but slightly.

In Freshman year the number of hours of instruction has been reduced from twenty to seventeen, by taking one hour from each of the courses in English, Latin and Greek. In Sophomore year the hours have been reduced from twenty to sixteen, by taking one hour from the Course in Mathematics, omitting the Course in Hygiene, and transferring the Course in Chemistry to the Junior year. The Instruction in Physics now begins with the first term and continues through the year, instead of beginning with the second term, as heretofore.

In Junior year the Course in Physics of four hours has been made elective, and Astronomy three hours and Chemistry three hours put upon the list of required studies. Additional electives in History, Philosophy and the Sciences are now offered Juniors and Seniors.

In the Senior year the only change has been effected through the removal of Astronomy to the Junior year.

A more careful grouping of the elective studies seems desirable, and a Committee of the Faculty has several plans under consideration.

An important change has been made in the earlier years of the Course in Science. In Freshman year each student is required to take one modern language five hours a week instead of two languages for seven or eight hours. The instruction in Latin has been dropped from this course, as it has been thought unnecessary and undesirable to give Latin of lower grade than that required by the Arts Course. The student who has the Arts entrance requirements in Latin and desires to continue the study of that language, together with a modern language, may do so in the Course in Natural History. The number of hours in Mathematics required of Freshmen in Science has been reduced from five to four, making the total reduction from twenty-one or twenty-two to eighteen, including the hours of drawing.

In the Sophomore year each student continues the language elected in Freshman year for three hours per week, the Courses in

History and Hygiene hitherto required are omitted, and the Course in Physics is begun with the first term. Students who do not intend entering a technical Science Course in the Junior year may substitute courses in History, pure Mathematics or Biology for the Courses in Descriptive Geometry and Drawing. The number of hours for Science Sophomores has been reduced from twenty-four or twenty-five to seventeen or nineteen, according to the election made.

In Junior year the student is required to take only one of the three subjects offered, Philosophy, English Literature or History.

In Senior year the Course in Astronomy has been made elective for students in Mechanical and Electrical Engineering.

The establishment of the four-year technical courses marks an important departure. Hitherto the student who proposed to fit himself to follow the profession of chemist or of civil or mechanical engineer was required, before entering upon the more technical part of his course (which extended through three years, viz.: The Junior, Senior and Post-Senior years) to spend the Freshman and Sophomore years in general study; most of which, while undoubtedly of great value in mental training, did not bear directly upon the object in view. As a result of this requirement it was found that a large number of good students, sufficiently prepared in Mathematics and Physics to enable them to enter as special students in the Junior class, chose a partial course and, after three years' work, received the certificate of proficiency. Those who were not prepared to enter the Junior class as special students did not find in the Freshman class, in the General Course, what they wanted, and either spent several years in preparing, outside of the University, for advanced standing, or went to institutions which offered definite professional courses. Another disadvantage of these requirements was that the student who had spent four years in College (two in general study and two in technical work), and had received the degree of Bachelor of Science, was not disposed to return to take the Post-Senior year, which has always contained the more important and finishing studies of the course. In this way many good students have failed to avail themselves of the admirable opportunities offered, and these departments were in constant danger of being held responsible for the men who, although in one sense graduates, had not actually completed the prescribed work. Such explanation seems necessary to show why it has been considered best to depart from the plan of technical instruction, which has been consistently pursued by the University through a series of years.

The change is not so radical as would at first appear, since the five year courses are still given and must always be the best courses, when the student is young or is undecided as to his choice of a profession. The first two years still form a fitting preparation for the Junior and Senior years in the Wharton School or the School of Biology. The requirements for admission to these four year technical courses are practically the same as for the Science Course, the difference being that, in the Engineering Courses, one language is omitted and Trigonometry and Elementary Physics substituted in its place. For the Courses in Chemistry and Architecture but one language is required, and the Arts requirement in Mathematics is accepted. In the courses an attempt has been made to give a fair amount of instruction in the general culture studies, in English and the languages, but the distinctive feature is the introduction of the technical work proper with the Freshman year.

To distinguish between the students who have taken the four years of the General Science Course, and those who have graduated from the four year Technical Course, the latter are awarded the degree of Bachelor of Science in the technical study, viz.: In Chemistry, in Chemical Engineering, in Mechanical Engineering, in Civil Engineering or in Architecture. The student in the old five year course who completes the Post-Senior year will be awarded the general degree of Master of Science, and may receive the appropriate technical degree after two years spent in active professional work. The graduates of the four year technical courses (which, so far as the scientific studies are concerned, cover the same amount of ground as the five year course) are also awarded the technical degree after three years of successful professional life and the presentation of a satisfactory thesis.

The first of these courses, that in Architecture, was opened in 1890; the second, in Mechanical Engineering, in 1891; the third and fourth, in Chemistry and Civil Engineering, at the beginning of the present year, and the fifth, in Chemical Engineering, is announced for next year. The result of the change is already manifest. The number of special students has been reduced, and the entrance to the lower classes largely increased.

In my last report I spoke of the pressing need for a complete re-organization of the instruction in Drawing and Architecture. With the aid of an advisory committee, composed of some of the leading Philadelphia architects, this has been successfully accomplished. In

January, 1891, Mr. Warren P. Laird, who had received his professional training at Cornell University, and who has had practical experience in his profession in one of the best known offices in the country, was called to the chair of Architecture, and given charge of the new school. Upon him has fallen the burden of planning the courses of instruction and the lines to be pursued for the best development of the school; and to his indefatigable zeal, clear perception and good judgment is due the gratifying success already achieved. The lively interest taken by the Advisory Committee in the organization of the school has been continued, and an important feature in the method of instruction are the courses upon practical matters given by these gentlemen. Mr. Charles E. Dana was elected professor of Art, and has had immediate charge of the classes in water colors. These classes have been opened to the public with certain necessary restrictions. In October, 1891, Mr. Millard was appointed instructor in Architectural Drawing, and, at the beginning of the current year, Mr. Everett took charge of the classes in Freehand Drawing and Sketching.

The department has suffered a severe loss in the death of Mr. Edmund H. Stewardson, for one term an instructor in Modeling, whose distinguished ability and conscientious performance of duty added unusual strength to the course.

As will be seen from the tables already given, the success of the school has been immediate and pronounced. In 1889 there were five students in Architecture. With the opening of the new course the number rose to twenty-nine; last year it increased to fifty-seven; and this year to fifty-eight. It has been found necessary to provide new accommodations for this school, and, during the past summer, a suite of six rooms, properly decorated and furnished, has been assigned to the department. They consist of an office, a lecture room, a library, two drawing rooms and a special studio for instruction in Sketching and Water Coloring.

The department of Mechanical and Electrical Engineering has been strengthened by the addition of more instructors and the number of students largely increased, from twenty-one in 1889-90 to forty in 1890-91, to sixty-nine in 1891-92, and to eighty-five at the beginning of the present session. The Board of Trustees has wisely taken advantage of the erection of the University Central Heat and Light Station to provide this department with a laboratory building of its own. This building was carefully planned, and is

admirably adapted to the purpose of instruction, but it is very evident that it will require enlargement within a short time to accommodate the growing classes. The boiler house, which adjoins the laboratory, and which contains eight boilers of various patterns, not only furnishes steam for motive and heating power, but is used by the engineering classes in their practical work. The laboratory building proper contains on the first floor the wood and metal shops, the engines and dynamos; on the second, the mechanical laboratory, class rooms, the reading room, the office and necessary closets; on the third, the draughting rooms, the electrical laboratory, class rooms and the assistants' offices; while on the fourth floor is the studio for blue printing, and some space as yet unassigned. It is a source of sincere gratification to be able to report that the work of this department is eminently satisfactory—reflecting great credit upon the Professor in charge—and that it has done much to enhance the reputation of the University.

Not less gratifying is the progress made in the department of Chemistry. This department occupies a position different from that held by the other technical departments, since upon it is thrown a large part of the required and elective studies in the General Courses in Science and the Course in Art, and it enters more largely into the instruction of students belonging to the other technical schools. More than 250 students are now receiving laboratory instruction in Chemistry in periods amounting to from three to thirty hours per week. Of this number, fifty-five are in the Course in Chemistry proper, either as special students or as candidates for the baccalaureate degree. Last year these students numbered thirty-six; in the year before, twenty-four; and in 1889, as shown by my last report, nineteen. The department has entirely outgrown the present laboratory, and it has been found necessary to assign each desk and working space to three students. It has been a serious question whether, under present conditions, we can conscientiously admit more new students. A new laboratory building is urgently needed, as it is not practicable to handle these large classes in the present small rooms situated on three floors of the College building. It has been found impossible to confine the fumes and gases generated in the laboratory, and many other departments have been put to serious inconvenience and possible danger.

The reorganization of the department of Civil Engineering has been too recent to permit of any specific statement here. It is con-

fidently expected, however, that, under the gentleman wisely selected by the Board as the head of the department, and by the introduction of the new four year course, it will increase as rapidly and strongly as the other technical departments. Indeed, most excellent progress has already been made, since, notwithstanding the uncertainty which necessarily existed during the period of reorganization, the number of students has increased twenty-five per cent. It has been thought best to divide the work in Mining Engineering between the departments of Civil Engineering and Chemistry until such time as there can be established a strong School of Mines. The Courses in Mining are still given to the few students who have selected this branch of professional preparation.

One of the most important actions taken by the Faculty during the past two years was the change introduced into the system of marking for scholarship. The difference between the work of the students, owing to the elective system, and the increase of separate distinct courses of study rendered the method of ranking in classes very difficult and in some cases unjust. It was decided, therefore, that the grades received in the different courses should not be combined to give the student a numerical rank in the class, but that, at the end of the Sophomore and Senior years, students who had received the highest grade attainable in two-thirds of all the marks given during that period, both for term and examination work, should be awarded Sophomore and Senior honors respectively, and that Special Mention at the end of any year might be given students for excellence in one or more subjects. In certain departments, candidates for this "Special Mention" are required to take additional courses.

The Wharton School of Finance and Economy has been successfully conducted during the three years past. The increase in the number of students has called for additions to the corps of instructors, and experience has dictated some minor changes in the course. Last year some rearrangement of the work was rendered necessary by the illness of Prof. James and the absence of Prof. Falkner.

So great is the demand for the instruction in subjects taught in this school that it becomes a serious question for consideration whether it would not be desirable to extend the course in Finance and Economy from a two year course, open only to Juniors and Seniors, to an independent course of four years, beginning with the Freshman year. It will be seen from the tables already given that there are on the rolls a large number of special students, students

taking all the courses prescribed, but who in most cases have not had the preparation which we regard as equivalent to that which they could gain from our Freshman and Sophomore years, and who cannot, therefore, be regarded as candidates for a degree.

It is true that great care has been exercised in the admission of this class of students, and, as a rule, they are able to pursue the course with profit, but in most cases they would be much better placed in a lower class, and the quality of the courses given to the upper-class men would be improved. It has never been the policy of the Faculty to admit, as special students, young men direct from the fitting schools who are only prepared for the Freshman class in Arts or Science. They are advised to enter this class, but as they are unable to obtain the instruction peculiar to the school, they often prefer to begin at once upon the study of law or enter business life. This is peculiarly the case with the students who feel they can give but two years in preparation for their life work. For these, a course through Freshman and Sophomore years would be of far more advantage than the almost purely technical course as at present given. If a four year course were established, it should be strong in English, Modern Languages, American and European History, Business Law and Practice, with at least one laboratory Scientific Course. Mathematics and related subjects need not be carried so far as in the other courses.

Since my last report, the School of American History has been established, and this year is the first in which the course is in active operation. The wide-spread interest in all that concerns our national life, and the increasing desire manifested by many students for special work in these fields will, no doubt, justify the formation of this department. The School has a double function in offering both graduate and undergraduate courses. The latter are elective in the Arts Course, and have also been grouped with other closely allied subjects into a two year course, open to students at the close of the Sophomore year. There are already twenty graduate and undergraduate students in the school, not counting students who are classified in other courses.

The recent action of the Board of Trustees with reference to the special instruction of College students preparing to study Medicine, has an important bearing upon the future of the Courses in Biology.

With the approval of the Medical Faculty it has been voted that students who shall take in their College Course biological and related studies about equivalent in amount to those required in the special

two year course preparatory to Medicine now offered by the School of Biology, and who receive the baccalaureate degree, shall be admitted, with certain slight conditions, to the second year of the four year Course in Medicine.

It was not thought wise to extend this privilege to special students not candidates for a degree, who take but two years in the School of Biology. While this action will decrease the number of these special students—as many of this class cannot afford to give two years to preparatory work and then spend four years in Medical study—it should be an inducement to more students intending to study Medicine to take a complete College course.

The first number of the contributions from the Botanical Laboratory has just been issued. This embraces seven important papers by professors and advanced students. A similar publication, containing the results of investigations in Zoölogy and Comparative Anatomy, is in press and will appear before the close of the year.

The Laboratory of Marine Biology was established in 1891. It grew out of a desire on the part of the Faculty and students for opportunities to investigate living forms, especially the aquatic, at the seasons of their greatest functional activity, and under the best natural conditions. It was felt also that facilities for instruction in Biology could in this manner best be brought within the reach of that class of students whose occupation during the winter months precludes them from continuous laboratory study.

After careful consideration of a number of localities, Sea Isle City, N. J., was selected for the site of the laboratory, as being rich in marine life, of easy access to several large cities and not too far removed from the parent school at the University. A plot of ground and the laboratory building were presented to the school by Mr. C. K. Landis, of Vineland, N. J. The work of the summer of 1891 was mainly of a preliminary and organizing nature. During the past summer the aquarium was completed and thrown open to the public, and the courses of instruction given nearly as published in the announcement. Dr. Greenman was in charge of the school, and the instruction in Botany was assumed by Prof. Macfarlane, and in Zoölogy by Prof. Ryder with Messrs. Moore and Calvert. There were fifteen students in these courses, and some good original work was done. It was decided that, as the summer work was under the charge of the Biological Faculty, successful completion of the courses offered might be counted by students as part of their work toward the

degree. The charges for current expenses and salaries were met by contributions from a few gentlemen interested in the School of Biology. The outlook for the future is excellent, and there can be now no doubt of the active demand for such facilities, or of their usefulness to the students of this and other schools. At present there is no money in the hands of the treasurer, and arrangements must be made before another season to secure either an adequate endowment or annual subscriptions sufficient to meet the fixed charges.

The instruction in Physical Culture has been faithfully given. This consists in weekly lectures on Hygiene and kindred topics, of physical examinations, and of exercises in gymnasium prescribed for all Freshmen and Sophomores. The gymnasium has been under the charge of a capable instructor, and the results appear to be as satisfactory as the insufficient space would permit.

The increasing attention given to athletic sports by the students cannot be said to be given to the detriment of the proper intellectual work of the institution. It has, without doubt, introduced a more manly spirit.

The general order in the College has been excellent, and the relations between teachers and students have been most cordial.

The ready response by the students to all measures suggested with a view to secure larger results to the institution has added greatly to the pleasure of College life, and has greatly lightened the burden of the Dean, on whom the responsibility of handling so large a body of students naturally falls. The annual cane rush has been given up, and efforts have been made to convert what class rivalry is desirable into ambition to excel in scholarship and legitimate athletic contests.

There have been few cases of discipline before the Executive Committee during the past years, and these few have been on charges of using dishonest means in the examinations. In all such cases, when the offense has been clearly shown, the punishment has been severe. Of intentional discourtesy to any member of the Faculty there has not been a single case.

The election of a Board of University Chaplains has done much to stimulate the religious life of the College. The Board, as at present constituted, consists of four clergymen, representing the Episcopal, the Presbyterian, the Methodist and Baptist denominations. They serve each one week in turn, conducting the chapel exercises, and remaining for two hours in the Chaplains' room, when they may be consulted by the students, either on personal or general College matters.

The chapel services occupy about fifteen minutes, and consist of a hymn, reading of the Scriptures, short address and prayer. The choir has been carefully selected, and is under the charge of an instructor who conducts two rehearsals each week and reports to the Dean. The interest taken in the chapel exercises is marked, and the attendance and conduct of the students most satisfactory. I would again urge the desirability of a separate chapel building, in which not only the morning exercises but also appropriate evening and Sunday services could be held, and which might become the home of the now scattered religious societies.

We are more than ever embarrassed with the problem of how to care properly for our students who come from abroad, and for whom homes must be found in Philadelphia. It is a problem which grows more important each year as the evolution of the College from a local to a national Institution compels us to assume larger responsibilities to the parents who entrust their sons to our guardianship. In the absence of dormitories, it was thought advisable this year to personally examine a number of boarding places, and to choose such as could be confidently recommended. This was done with thoroughness by a special committee of the Faculty, which has been named the Committee on Residence.

It is to be hoped that some better provision will be made in the future, if not by actual dormitories, at least by renting a certain number of good houses, and by encouraging the formation of students' clubs.

The dining hall, built and put in operation three years ago, has been the subject of much thought and anxiety. Several plans of conducting it have been tried, none of which have been entirely satisfactory. For the first year a caterer was engaged upon a salary, and the University received the money and paid all the bills. The service was, on the whole, good, but the year's business was conducted at a loss of upward of \$2000 to the guarantor.

The next year a new arrangement was effected, by which the caterer was to operate the business himself, the University furnishing the hall, gas, coal and heat free of charge. Two new men were tried successively during the year and dismissed for unsatisfactory service.

Last year it was thought advisable to attempt to furnish luncheon only in place of a regular dinner. This was not favorably received by the students, and there was not enough patronage to cover expenses, and so there was no profit to the caterer and a loss to the University.

This year we have returned to the plan of two years ago, but the caterer has entered into a written contract with the University to furnish meals of specified quality and quantity at a definite price, of twenty-five cents for each meal, or \$3.50 for weekly board, in return for which the University furnishes the plant, coal and gas. At the present date the arrangement is working well, and for the first time a number of students, some fifty or more, are taking all their meals in the dining hall.

I desire to call particular attention to the conspicuous lack of endowment funds which can be used for the aid of deserving but needy students. With the exception of the Baird Scholarship, yielding about two hundred dollars, there is absolutely not a dollar at our command for this purpose. It has always been the custom for a special committee of the Board of Trustees to admit each year a certain number of free students. This, of course, diminishes the College income materially, and until last year, when a reorganization in methods was introduced, this gift by the University from its income was not shown upon the Treasurer's books.

Leaving out of consideration the City Prize and the Penn Scholarships, this year over eleven thousand dollars will be granted from this so-called students' aid fund. It becomes a serious question whether, with the demands upon the income from all sides, it will be possible to continue this liberality—certain it is that it cannot be further extended. The creation of a capital fund to cover this and a greater expenditure would widen our field of usefulness to a class of students who need some assistance, and thus increase the total number of undergraduates and put the College finances in excellent condition. If this is true of scholarships, it is not less true of fellowships. We have but one income-yielding fellowship open to men. In many institutions the possession of endowed fellowships renders much possible from which we are excluded.

It is a source of constant astonishment to those who are most familiar with the financial condition of the College Department, that without these material aids so much has been accomplished.

In very many departments of College instruction there is more than one instructor and but one lecture or recitation room. A conflict within the department for the use of the room is unavoidable, and it is necessary at times for one department to use the rooms of another. This is extremely undesirable, as the special equipment of the department, the books, maps, blackboards and illustrative material of all

kinds are rendered unavailable. It is even at times impossible for the instructor to meet the same class always in the same room, which is a source of annoyance to the instructor and very detrimental to the class discipline. An effort has been made to avoid that difficulty by dividing some of the larger rooms and the ends of the halls have been cut off into class rooms, and space has been gained by the removal of the Archæological collections to the Library and the withdrawal of the Department of Mechanical Engineering to the new building, but the growth of the work in all departments has more than neutralized this gain. It will be absolutely necessary to provide more accommodation before another year.

The buildings under my charge have been kept in good repair and such improvements made as were judged absolutely essential. During the past summer the entire steam heating and ventilating systems in College Hall have been renewed in order to connect them with the Central Heating Plant, and the building has been wired for electric light. This work has been somewhat destructive to the appearance of the building, and it will be necessary to repaint a number of the rooms. The oversight of this work has been put in the hands of the Architectural Department, and a method of decoration and color scheme has been adopted for the whole building. By next autumn it is hoped that the work may be finished.

Very Respectfully,

HORACE JAYNE,

Dean.

APPENDIX III.

REPORT OF THE DEAN OF THE DEPARTMENT OF PHILOSOPHY.

DEAR SIR:—The recent appearance in the *University Bulletin* of a detailed account of the Department of Philosophy renders an extended statement of that school unnecessary. Since the publication of your last report the growth of the department has been in every way most gratifying.

In 1887, there were 7 students on the rolls; in 1888, 30; in 1889, 42; in 1890, 48; in 1891, 72; and this year, 117.

The requirements for admission, the possession of a college degree or the presentation of a full equivalent, has been most carefully enforced, and all the students are residents at the University—this is, attending definite formal exercises.

The present matriculates have graduated, or pursued graduate courses at the following institutions:

Amherst College.	Kenyon College.
Antioch College.	Leipzig University.
Berlin Gymnasium.	Leitz Gymnasium (Prussia).
Berlin University.	Mitau College (Russia).
Bonn University.	Mühlenberg College.
Brethren's College (Huntington, Pa.).	
Brown University.	Riga Polytechnic School (Russia).
Calvin College (Cleveland, O.).	Roanoke College.
Colby University.	St. Stephen's College.
Columbia College.	Swarthmore College.
Columbian University.	Thiel College.
Cornell University.	University of Pennsylvania.
Fisk University.	University of Toronto.
Franklin and Marshall College.	University of Michigan.
German Theological Seminary.	University of Wisconsin.
Hampton College.	University of Missouri.
Harvard University.	Ursinus College.
Illinois Wesleyan University.	Wellesley College.
Johns Hopkins University.	Mittenberg College.

During the last two years the methods of instruction have been improved, and the hours of each instructor assigned upon the roster.

Courses covering 273 hours per week were offered this year, of which 180 hours per week were selected and put upon the roster.

The following table show the branches of instruction and the number of students selecting them as the major or minor subjects of their courses:

SUBJECTS.	MAJORS.	MINORS.
1 American Archaeology and Linguistics	—	—
2 American History	3	5
3 Botany	6	7
4 Chemistry (Organic and Inorganic)	9	11
5 Comparative Philology and Sanskrit	—	4
6 English Language and Literature	4	3
7 European History	2	14
8 Experimental Psychology	2	10
9 Germanic Language and Literature	—	5
10 Greek Language and Literature	1	3
11 Latin Language and Literature	1	3
12 Legal Institutions	—	—
13 Mathematics	2	1
14 Mineralogy }	2	4
14 Geology }	—	5
15 Political Economy	11	8
16 Political Science	—	15
17 Philosophy	9	9
18 Physics	—	4
19 Romance, Philology and Literature	—	1
20 Semitic Languages and Literature :		
Assyriology	3	2
Hebrew	3	3
Arabic	1	1
21 Zoölogy	3	5

Thirty-nine of the present 117 students are not candidates for the master's or doctor's degree and take special courses only in the following subjects :

SUBJECTS.	NUMBER OF STUDENTS.
American History	7
Chemistry	1
Comparative Philology and Sanskrit	1
English Language and Literature	3
European History	2
Experimental Psychology	1
Mathematics	1
Political Economy	3
Political Science	1
Philosophy	14
Physics	1
Hebrew (Semitic Languages and Literature)	5

APPENDIX IV.

REPORT OF THE DEAN OF THE FACULTY OF
MEDICINE.

TO THE PROVOST OF THE UNIVERSITY.

DEAR SIR:—As Dean of the Department of Medicine I beg to submit the following report :

During the session of 1889-90, four hundred and eighty-five students attended the instruction in this Department. Of these—

	6	were	students	of	the	fourth	year,
149	"	"	third	"			
151	"	"	second	"			
177	"	"	first	"			

2 were special students, or a total of 485.

During the session of 1890-91, five hundred and eighty two attended :

	6	were	students	of	the	fourth	year,
165	"	"	third	"			
191	"	"	second	"			
211	"	"	first	"			

9 were special students, or a total of 582.

During the session of 1891-92, there were six hundred and ninety-three students in attendance, made up as follows :

	8	were	students	of	the	fourth	year,
197	"	"	third	"			
241	"	"	second	"			
241	"	"	first	"			

6 were special students, or a total of 693.

At the opening of the session of 1892-93 there were 847 students in attendance, made up as follows :

	13	were	students	of	the	fourth	year,
252	"	"	third	"			
260	"	"	second	"			
311	"	"	first	"			

11 were special students, or a total of 847.

It will be seen that there has been a rapid increase in the classes of each year. Until the session of 1890-91, the largest class was that of 1859-60. This was exceeded in 1890-91, in the session of 1891-92, and in the session just opening.

The number of graduates in 1889 was 128, in 1890, 115, in 1891, 135, and in 1892, 154. The total number of graduates up to the present time is 10,612.

The fourth year continues insignificant, as must be the case as long as it is voluntary. Fortunately this state of affairs can only last for a short time longer, since the compulsory four-year course goes into operation with the session 1893-94.

Of the Freshman class for the session 1889-90, numbering 177, 55, or 31 per cent., were admitted on degrees in Arts or Science, 111 on certificates, and 11 on examination in Physics and English. Of the first year class of 1889-90, numbering 177 men, 55, or 31 per cent., were admitted on degrees, 98 on certificates, and 24 after examination.

Of the Freshman class for 1890-91, numbering 211, 73, or 34½ per cent., were admitted on degrees, 91 on certificates and 40 after examination. Of the Freshman class of the session 1891-92, numbering 241, 46, or 11 per cent., were admitted on degrees, 164 on certificates, and 31 after examination. Of the Freshmen class of the session 1892-93, numbering 311, 78, or 25.2 per cent., were admitted on degrees.

I append a table showing how many of the *first-year* class held degrees in Arts or Science at date of admission in each of the last thirteen years, since the compulsory three-year course was established:

YEAR.	TOTAL CLASS.	DEGREES.	PER CENT.
1877-8	136	19	13.9
1878-9	123	20	16.2
1879-80	133	33	24.8
1880-81	109	34	31.1
1881-2	98	24	24.5
1882-3	115	33	28.7
1883-4	140	43	30.8
1884-5	101	38	37.6
1885-6	131	35	27.
1886-7	137	43	31.4
1887-8	128	28	22.0
1888-9	139	42	30.0
1889-90	177	55	31.0
1890-91	211	73	34.5
1891-92	241	46	19.0
1891-93	311	78	25.2

At this time the Medical Department is in possession of a large number of excellent microscopes; the outfit of the Histological Laboratory includes one first-class Zeiss instrument, stand IV¹ with iris diaphragm, Abbe condenser, and lenses a³, BB, DD, and ¾ and

$\frac{1}{12}$ apochromatic objectives, three ordinary, three compensating and one projecting ocular, and an Abbe drawing apparatus. The remaining instruments include fifty-six Zentmayer's microscopes, each with double nose piece, an $\frac{8}{10}$ inch and $\frac{1}{2}$ inch objective and A and B oculars; and an additional Beck "Star" microscope, with one inch objective and A and B oculars. In the Pathological Laboratory, one Zeiss microscope for micro-photography, one apochromatic immersion objective and accessories; sixty Zentmayer's microscopes, each with $\frac{1}{2}$ and $\frac{8}{10}$ objectives and B ocular; fourteen A eye pieces, sixty double nose pieces, two class-microscopes without objectives; and in the Clinical Laboratory at the Hospital, one Leitz stand, equipped with a $\frac{1}{3}$, a $\frac{1}{4}$, and a $\frac{1}{2}$ oil immersion lenses, eye-pieces A and C, iris diaphragm and Abbe condenser; also a Zentmayer's histological stand, provided with an $\frac{8}{10}$ inch and $\frac{8}{10}$ inch object glass, eye-pieces A and B, iris diaphragm and Abbe condenser.

Since my last report another pavilion has been added to the Maternity Department of the Hospital of the University, erected through the liberality of the State, furnishing, with the first pavilion, a capacity of ten confinements a month, all of which are availed of for the instruction of the graduating class.

The appended table indicates the subjects taught and the number of hours per week devoted thereto in the past winter's session, 1891-92 by the professors and instructors:

First Year.

Instructors.	Subjects.	Exercises per week.
Prof. Piersol	Descriptive Anatomy	3
Prof. Piersol	Histological Demonstration	1
Prof. Deaver	Applied Anatomy	2
Drs. Holmes, Neilson, H. C. Deaver, Jameson, Brinkmann, Boger and Pennock	Practical Anatomy (Dissection)	10
Drs. Robert Formad, Chambers and Stout	Histology, laboratory instruction,	10
Dr. Miller	Mat. Medica and Pharmacy, lecture	1
Drs. Toboldt and Schleif	Practical Pharmacy, laboratory exercises	2
Prof. Wormley	General Chemistry, including Chemical Physics	2
Prof. Marshall and Dr. Cattell	Practical Chemistry, laboratory	3
Prof. Reichert	Physiology	3
Prof. Guit��ras	General Pathology	1
Prof. Billings and Dr. Abbott	Hygiene	1
Profs. Pepper and Ashhurst	General Clinics, Medical and Surgical	2

Second Year.

Prof. Fiersol	Anatomy	3
Prof. Deaver	Applied Anatomy	2
Mrs. Holmes, Neilson, Jameson, Brinkmann, Boger and Pennock	{ Dissection	10
Prof. Wormley	Medical Chemistry, lecture	1
Prof. Marshall and Dr. Cattell	{ Laboratory Exercises in Medical Chemistry	3
Prof. Reichert	Physiology	3
Prof. Guitéras	General Pathology and Morbid Anatomy	2
Mrs. H. F. Formad, Hatch and Macfarland	{ Laboratory Exercises in Pathological Histology	5
Prof. Musser, Drs. Stevens, Packard and Stahl	{ Physical Diagnosis, practical instruction,	5
Prof. Wood	Therapeutics	2
Prof. Pepper	Theory and Practice of Medicine	3
Prof. Ashhurst	Surgery	3
Prof. Hirst	Obstetrics	2
Prof. Pepper, Ashhurst, Tyson and White	{ General Clinics, Medical and Surgical	4
Prof. Wood, Norris, Goodell, Duhring and Randall	{ Special Clinics (Nervous Diseases, Diseases of the Skin, Eye, Ear, Diseases of Women)	5

Third Year.

Prof. Guitéras	General Pathology and Morbid Anatomy	3
Prof. Guitéras	Autopsies and Bacteriology	1
Dr. H. F. Formad	Demonstrations in Morbid Anatomy . .	5
Prof. Wood	Therapeutics	2
Prof. Pepper	Theory and Practice of Medicine . . .	3
Prof. Ashhurst	Surgery	3
Drs. Wharton, Davis, Young and Green	{ Operative Surgery, Minor Surgery and Bandaging, 1 lecture per week, 2 hours' practice	3
Prof. Hirst	Obstetrics	3
Prof. Hirst	{ Operative Obstetrics, 1 hour practice, ½ term	½
Prof. Goodell and Dr. Tay- lor	{ Gynaecology, 1 lecture per week, 3 hours' bedside teaching	4
Prof. Tyson and Drs. Da- land, Mitchell, Griffith and Morton	{ Bedside Instruction in Practical Medicine	3
Prof. White and Drs. Mar- tin, A. C. Wood, Kirby and Leonard	{ Bedside Instruction in Practical Surgery,	3

Profs. Pepper, Ashhurst, Tyson and White	{ General Clinics, Medical and Surgical	4
Profs. Wood, Norris, Duhring, Goodell, Willard, Griffith, Martin and Randall	{ Special Clinics (Nervous Diseases, Diseases of the Skin, Eye, Ear, Gynecology, Children, Genito-urinary Diseases, Orthopaedics	6½

Fourth Year.

Profs. Pepper and Tyson and Drs. Musser, Daland, Mitchell and Reeves	{ Clinical Medicine and Physical Diagnosis, including Laryngology—practical instruction	{ 4 before Jan. 1. 5 after Jan. 1.
Profs. Ashhurst, White and Martin	{ Clinical Surgery—clinical lecture, practical instruction	3
Prof. Martin	{ Operative Surgery and Genito-urinary Diseases—practical instruction	1
Prof. Martin	{ Clinical Instruction in Genito-urinary Diseases	1 after Jan. 1.
Prof. Wood and Drs. Der-cum and Potts	{ Nervous Diseases and Electro-Therapeutics—clinical lecture, practical instruction	{ 3 until Jan. 1. 2 after Jan. 1.
Dr. Mills	Mental Diseases	1
Prof. Goodell and Dr. Taylor	{ Gynecology—didactic lecture, clinical lecture, practical instruction	3
Prof. Griffith	{ Diseases of Children—I hour clinical lecture	1 until Jan. 1.
Prof. Duhring and Dr. Hartzell	{ Dermatology—didactic lecture, clinical lecture, practical instruction	{ 2 until Jan. 1. 1 after Jan. 1.
Prof. Randall and Dr. Brown	{ Otology—didactic lecture for half session, practical instruction for half session	{ 1 until Jan. 1. 1 after Jan. 1.
Prof. Norris and Dr. Wallace	{ Ophthalmology—didactic lecture, clinical lecture, practical instruction	3
Dr. Haehnlen	{ Clinical and Operative Obstetrics—practical instruction for half the session	1 until Jan. 1.
Drs. Willard and Young	{ Orthopaedic Surgery—didactic lecture for half session, practical instruction for half session	{ 1 after Jan. 1. 1 until Jan. 1.

The Trustees and Medical Faculty of the University, recognizing that the field of medical study is constantly enlarging, so that it is no longer practicable to give an adequate course of instruction in the limited space of three years, have adopted a *Four-year course, beginning with the session of 1893-94*. It is expected that through this change the student may not only receive more thorough and systematic instruction, but at the same time will be enabled with less burden to himself to assimilate the information imparted.

The first year of the new course will be largely occupied with work in the various laboratories of Chemistry, Pharmacy, Osteology, and Histology, and in Dissection. The first-year student may also attend clinical lectures in General Medicine and General Surgery. In the second year, in addition to didactic and clinical teaching, practical instruction is given in Medical Chemistry, Pathological Histology and Physical Diagnosis. Dissection is continued. Throughout the second, third and fourth years the student is required to attend the general medical and surgical clinics at the University and Philadelphia Hospitals, and during the third and fourth years the clinics in special departments at the former. Special *bedside* instruction in Clinical Medicine, including Physical Diagnosis, and in Clinical Surgery, is given in the third year. During the fourth year, in addition to special *bedside* instruction in Clinical Medicine, in Clinical Surgery, and in Gynecology, practical instruction is given in operative surgery, and operative obstetrics, in diseases of the nose, throat, eye, ear, and skin, in genito-urinary diseases, and in nervous diseases. For this purpose the third- and fourth-year classes are divided into sections, each of which receives direct personal instruction.

At the beginning of the fourth year the student must select two branches from the following electives, and pursue the study of the two branches as special studies: Electives—Neurology, Orthopædic Surgery, Advanced Ophthalmology, Dermatology, Otology, Advanced Hygiene, including Bacteriology, Advanced Anatomy, Advanced Physiology, Advanced Pathology, Advanced Medical Chemistry, including Toxicology; Pædiatrics, Genito-Urinary Surgery, and Experimental Psychology. At the end of the fourth year the student will be examined in the two special branches in addition to the regular examinations of that year.

The course of instruction is so arranged as to permit the constant introduction of new material, while retaining the repetition of essential subjects aimed at by the older method. The laboratory instruction is so co-ordinated with the oral teaching as to illustrate the subjects of the lectures.

I herewith append an outline of the new Four-year Course:

FIRST YEAR.

Anatomy.—Three lectures per week, ten hours Dissection, including Osteology (alternating with practical Histology).¹

Histology.—Two hours laboratory instruction, one hour demonstration.

Materia Medica and Pharmacy.—One lecture per week, two hours laboratory.

General Chemistry, including Chemical Physics.—Two lectures per week, three hours laboratory.

Physiology.—Three lectures per week.

General Pathology.—One lecture per week.

Medical History, Terminology, Ethics, etc.—One lecture per week.

Physical Diagnosis.—One lecture per week.

General Symptomatology and Diagnosis.—One lecture per week.

Bandaging.—One lecture per week, one hour practice until December 15.

General Clinics.—Medical and Surgical.

Final examinations at the end of the course: General Chemistry, Elementary Anatomy with especial reference to Histology and Osteology, Materia Medica and Pharmacy, Elements of General Pathology and Physical Diagnosis.

SECOND YEAR.

Anatomy.—Three lectures per week, ten hours evening dissection.

Applied Anatomy.—Two lectures per week.

Medical Chemistry.—One lecture per week, three hours laboratory.

Physiology.—Three lectures per week.

General Pathology and Morbid Anatomy.—Two lectures per week, one and a half hours laboratory.

Physical Diagnosis.—One hour per week demonstration.

Therapeutics.—Two lectures per week.

Surgery.—Three lectures per week.

Obstetrics.—Two lectures per week.

General Clinics, Medical and Surgical, including Philadelphia and Pennsylvania Hospital Clinics.

Special Clinics.—(Nervous Diseases, Gynæcology, Diseases of Skin, Eye, Ear, alternating with Physical Diagnosis and Pathological Histology.)

¹ In the distribution of anatomical material at the beginning of the session, students of the second year are first supplied, and students of the First-year may not receive material until about December 1.

Final examinations at the end of the course: Medical Chemistry, Anatomy, including Embryology; Physiology and Physical Diagnosis.

THIRD YEAR.

Applied Anatomy.—Two lectures per week.

General Pathology and Morbid Anatomy.—Two lectures per week.

Bacteriology.—One lecture per week for six weeks.

Demonstrations in Morbid Anatomy, including Autopsies.—Two hours per week.

Therapeutics.—Two lectures per week.

Theory and Practice of Medicine.—Three lectures per week.

Surgery.—Three lectures per week.

Minor Surgery and Fracture Dressings.—One lecture per week, two hours practice.

*Obstetrics.*¹—Three lectures per week.

Gynecology.—One didactic lecture per week.

*Bedside Instruction in Practical Medicine, including Physical Diagnosis.*²—One hour per week.

*Bedside Instruction in Practical Surgery.*²—One hour per week.

Dermatology.—One didactic lecture per week until January 1, one hour per week clinical lecture.

Ophthalmology.—One didactic lecture per week, one hour per week clinical lecture.

Otology.—One didactic lecture per week until January 1, one hour per week clinical lecture.

Laryngology.—One didactic lecture per week after January 1.

Genito-Urinary Diseases.—One hour per week practical instruction after January 1.

General Clinics, Medical and Surgical, including Philadelphia and Pennsylvania Hospital clinics.

Special Clinics (Nervous Diseases, Pædiatrics, Gynæcology, Diseases of the Skin, Eye, Ear at both University and Philadelphia Hospitals).

Final examinations at the end of the course: Applied Anatomy, General and Special Pathological Anatomy, Therapeutics, Surgery, Obstetrics and Ophthalmology. The examinations include questions

¹Students also receive individual practical instruction in pelvimetry and abdominal palpation in addition to the lectures on Obstetrics.

²For these courses the class is divided into sections, so that each student shall receive direct personal instruction.

on Diseases of the Skin and the Ear from lists furnished by the Clinical Professors of those branches.

FOURTH YEAR.

Theory and Practice of Medicine.—Three lectures per week.

Clinical Conference in Medicine.—One hour per week.

Clinical Medicine.—Two clinical lectures per week, two hours per week bedside instruction.

Clinical Surgery.—Two clinical lectures per week, one hour per week bedside instruction.

Operative Surgery.—One lecture per week and one hour practical instruction after January 1.

Operative Obstetrics.—One hour practice per week until January 1.

Nervous Diseases and Electro-Therapeutics.—One clinical lecture per week, one hour per week practical instruction.

Hygiene.—One lecture per week.

Gynecology.—One didactic lecture per week, one clinical lecture per week, one hour per week practical instruction.

Pædiatrics.—One clinical lecture per week until January 1.

Dermatology.—One clinical lecture per week, one hour per week practical instruction.

Ophthalmology.—One didactic lecture per week, one clinical lecture per week, one hour per week practical instruction.

Otology.—One didactic lecture per week until January 1, one clinical lecture per week, one hour per week practical instruction.

Laryngology and Rhinology.—One hour per week practical instruction.

Autopsies.—One hour per week practical instruction.

Clinical and Operative Obstetrics.—One hour per week practical instruction.

Orthopædic Surgery.—One clinical and didactic lecture per week, one hour per week practical instruction until January 1.

Genito-Urinary Diseases.—One hour per week practical instruction after January 1.

General Clinics, Medical and Surgical, including Philadelphia and Pennsylvania Hospital Clinics.

Final examinations at the end of the course: Theory and Practice of Medicine, Clinical Medicine, Operative Surgery, Clinical Surgery, Operative Obstetrics, Gynæcology and Hygiene, and examinations in two of the following branches which the student must have elected as special studies at the beginning of the fourth year: Neu-

rology, Orthopædic Surgery, Advanced Ophthalmology, Dermatology, Otolaryngology, Advanced Hygiene, including Bacteriology; Advanced Anatomy, Advanced Physiology, Advanced Pathology, Advanced Medical Chemistry, including Toxicology; Pædiatrics, Genito-Urinary Surgery and Experimental Psychology.

Respectfully submitted,

JAMES TYSON, *Dean*.

APPENDIX V.

REPORT OF THE DEAN OF THE FACULTY OF DENTISTRY.

PROF. WILLIAM PEPPER, PROVOST,

DEAR SIR:—I have the honor to report to you the condition of the Department of Dentistry at the present time, and also to exhibit the progress made during the last three years.

The following statistics will give a general idea of the results obtained :

1889-90.

The number of students matriculated, 1889-90	159
Of these there were students of the first year	87
" " " " " " " " second year	72
	—
Number of new matriculates, including those admitted to advanced standing	159
	104

1890-91.

The number of students matriculated, 1890-91	206
Of these there were students of the first year	112
" " " " " " " " second year	93
Special student	1
	—
Number of new matriculates, including those admitted to advanced standing	206
	128

1891-92.

The number of students matriculated, 1891-92	169
Of these there were students of the first year	62
" " " " " " " " second year	107
	—
	169

The number of new students matriculated, including those admitted to advanced standing 78

SUMMARY, 1889-90 TO 1891-92.

Students in full attendance	533
Special student	1
	<hr/> 534

	1889-90.	1890-91.	1891-92.
Of these there were admitted upon presentation of certificate	76	90	48
Admitted upon examination	13	20	13
" to advanced standing	15	18	17

Those admitted to advanced standing presented certificates and diplomas from the following institutions:

	1889-90.	1890-91.	1891-92.
Philadelphia Dental College	2	0	0
New York College of Dental Surgery	0	2	1
Ohio College of Dental Surgery	0	1	0
Owen's College, England	0	1	0
Royal College of Dental Surgery, Ontario, Canada,	0	0	1
McGill University, Montreal, Canada	0	1	0
Dental Department, Medical Faculty, Rio Janeiro, Brazil	2	0	0
National Dental Hospital, London, England	1	2	1
Royal College of Surgeons, Edinburgh, Scotland	3	0	0
" " " England	0	0	1
University of Leipzig	1	0	0
" " Michigan	0	0	1
" " Pennsylvania, Medical Department	0	1	2
" " Berlin	3	5	5
" " Zurich	1	2	2
" " Geneva	2	1	1
" " Berne	0	1	0
" " Breslau	0	0	1
" " Vienna	0	3	1
" " Utrecht	0	0	1
" " Wurzburg	0	1	1

The countries represented in the Department are as follows:

	1889-90.	1890-91.	1891-92
Middle States	79	111	95
New England States	15	17	6
Western States	20	18	16
Southern "	12	12	9
Pacific "	1	4	4
Austria	0	3	1

	1889-90.	1890-91.	1891-92.
Dominion of Canada	4	9	7
District of Columbia	1	0	0
Australia	1	3	1
West Indies	5	5	3
South America	3	2	2
Central "	2	3	2
England	1	2	3
Germany	7	4	8
France	0	0	1
Switzerland	4	7	3
Turkey	0	0	1
Mexico	1	3	2
Scotland	3	0	0
Denmark	0	1	1
Italy	0	1	1
New Zealand	0	1	2
Holland	0	0	1

SUMMARY.

United States and Canada	128	162	130
Foreign countries	31	44	39

The number of students admitted to advanced standing or, what might more appropriately be termed, a post-graduate course, remains without material change.

There is a slight falling off in numbers from Switzerland, which is due to the fact that a recent change in the law there requires, it is understood, seven years attendance at the university before graduation. This will probably force students of that country, in dentistry, to forego any advantages they might receive from an American training.

The amount of work performed in the operative and mechanical branches has been as follows:

Operative:	1889-90.	1890-91.	1891-92.
Number of operations	17,154	19,817	21,186
Mechanical:			
Number of operations	728	981	794
Total	17,882	20,798	21,980
Amount of gold used for stopping, exclusive of that used in mechanical work	72 ozs. or 6 lbs.	72 ozs. or 6 lbs.	69 ozs. or 5 lbs. 9 ozs.
Number of patients	8184	8977	8536
Number of students in the graduating class	72	93	107
" " " who received the degree,	69	91	89

The number of students in each of the three years, together with the amount of work performed, shows a regular increase. The importance of the clinics in the training of the students cannot be overestimated; indeed, they constitute the life of the Department, and are, therefore, carefully guarded in every respect.

This training on the living subject is a form of education peculiar to dental colleges, and originated with the first college established in this country in 1839. Its value as a means of professional education has been thoroughly established, and any change is neither looked for or desired.

COURSE OF INSTRUCTION, SESSIONS 1889-90 TO 1891-92.

Length of session, seven months—from October 1st to May 1st.

Lectures on Mechanical Dentistry	2	hours	each	week.
“ “ Operative “	2	“	“	“
“ “ Dental Pathol. Ther. and Mat. Med	2	“	“	“
“ “ Anatomy	3	“	“	“
“ “ Chemistry	2	“	“	“
“ “ Physiology	3	“	“	“
Instruction in General and Special Histology	2	“	daily.	
Chemical Laboratory, first year students	4	hours	each	week.
Mechanical Laboratory, under care of Demonstrators	24	“	“	“
Dental Infirmary, under care of Demonstrators	36	“	“	“

The Infirmary and Mechanical Laboratory are open daily from 9 A.M. to 4 P.M. for practical work.

The history of the Department for the past three years covers a period of interest in that there has been a progressive advance in the standard both as to the curriculum and time required.

The organization of the National Association of Dental Faculties, composed of delegates from all the Colleges and Departments of Dentistry in the United States and Canada, has made it possible to enforce rules bearing equally and impartially upon all.

This unifying process has been accomplished with a minimum amount of friction. This body decided, at Saratoga, 1889, “That attendance upon three full regular courses, of not less than five months each in separate years, shall be required before examination for Graduation,” and that all the Colleges should commence this Course at the beginning of the Session 1891-92.

This period was anticipated with some anxiety. The first effect was observed in 1889-90, and 1890-91, in largely increased classes, so that the latter session brought the number of matriculates to 206.

This was greatly in excess of normal development, and while satisfactory in a financial sense was otherwise in an educational, as it strained the facilities of the Department to the utmost.

The training of a Dental student requires personal and direct supervision, mere didactic teaching will not avail, hence the system adopted demands a large corps of Demonstrators, a force very difficult to secure and to hold.

The decrease in students at the beginning of the Three-Years' Course was not as great in the attendance upon the first year as had been anticipated; the number of sixty-two in the Freshmen class means, at the expiration of the three years, a combined class fully equal to that of 1890-91. If this increase continues in direct proportion, and there seems no reason to question it, the possibility of successfully managing it with our present facilities seems more than doubtful.

Changes in the course of study were made necessary by the extension to three years, and it was decided to adopt the following:

OUTLINE OF THE COURSE, SESSION 1891-92.

First Year.

The First Year students will be required to attend the following branches and pass final examination upon *Materia Medica*, Chemistry, and Histology, at the close of the term. If the student fail to pass, a second examination is afforded him at the beginning of the next Winter Session.

1. Chemistry, in the Chemical Laboratory, three hours Thursday morning, and the lectures on this branch Monday and Tuesday of each week.
2. Dental *Materia Medica*. One lecture. Saturday of each week.
3. General and Special Histology, in the Histological Laboratory, two hours, and Anatomical Demonstrations one hour each week.
4. The morning hours not otherwise occupied will be devoted to practical work in the Mechanical Laboratory.
5. On the afternoon of each week-day, except Saturday, the students of the First Year Class will be trained in Operative work, either out of the mouth on extracted teeth or in simple cavities in the living subject.
6. They will, in addition to subjects named, attend lectures on Anatomy, Physiology, Operative and Mechanical Chemistry.

Second Year.

1. Students of the Second Year will repeat Anatomy and Physiology, Operative and Mechanical Dentistry, and add thereto Dental Pathology and Therapeutics.
2. They will repeat Operative and Mechanical work, with the privilege of the operating room and appliances, during the morning as well as the afternoon clinics.
3. The final examinations of the Second Year, at the close of the term, will be upon Anatomy and Physiology.

Third Year.

1. Students of the Third Year will repeat the practical work in Operative and Mechanical Dentistry and the lectures on these subjects, together with Dental Pathology and Therapeutics.
2. At the close of the term they will be required to pass examinations in these branches.

The addition of Histology to the studies of the First Year was made to harmonize as near as possible to that of the Department of Medicine in the first year. It cannot be considered wholly satisfactory, as it creates final examinations in this year on three important studies, and subjects the student at the very beginning of his work to a serious mental strain, but at present there seems no possibility of making satisfactory changes.

The course as previously outlined gives the student a very good foundation in the work of his profession for the time spent, but it is surmised that the three years at present required will be found to be inadequate for the proper acquirement of a dental education, and that we will be obliged to contemplate eventually a four-years' course.

The action of the various State Boards of Dental Examiners has been such as to cause grave anxiety. In many of the States the laws require re-examinations. This duty is given to men in many instances with unknown qualifications, and whose work we have no right to traverse; the result of these State examinations has been in several instances the rejection of our Graduates on first examination when the grade has been specially high in this Department. In other instances our Graduates have been subjected to humiliating procedures and long delays before securing the right to practice.

This condition of things has caused much disturbance in the National Association of Dental Faculties, and a demand was made upon the National Association of Dental Examiners, at Saratoga, 1891, that the State Boards shall furnish the Deans and Secretaries of Dental Colleges and Departments of Dentistry of Medical Colleges and Universities with the character of the examination given each student. This has been in part complied with, but the question still needs further adjusting to avoid antagonism.

In view of this condition, and also that some of the State Boards demand 75 per cent. in examination, it was deemed best by the Faculty of this Department to raise the standard from fifty to sixty in a possible 100.

The preliminary examination still remains in the unsatisfactory state it was left at my last report. Until the general public school education is raised throughout the United States, and especially in Pennsylvania, from its present imperfect condition, any change may be regarded as impossible and perhaps unwise.

The difficulties the Department has labored under since its organization in lack of room facilities has been apparent to yourself and Faculty.

We possess one of the largest and probably the best appointed operating room on this continent, but there is needed something more than this not possible in our present building, or in Medical Hall. A properly-arranged dental school should be furnished with reception rooms, laboratories, etc.; these are but imperfectly provided for at present.

Acting upon your suggestion, the Faculty have taken the initiatory steps toward the erection of a building designed to cover all present needs and future possibilities. There are many financial difficulties to be overcome in the accomplishment of this, but it is anticipated that these will be conquered by persistent effort in the near future.

It is presumed that the really philanthropic work accomplished by this Department is not well understood. The large number of patients treated in the last three years, over 25,000, and the good thereby accomplished is worthy of more serious consideration than has generally been given to it.

To extend this work, and make it more creditable to the great University of which it is a part, it must have a building worthy to rank with those already erected.

In this way only can the Department hope to maintain the high position already attained.

Appended is a condensed statement of income and disbursements for the last three sessions.

1889-90.

INCOME.

Tuition, Matriculation, and Graduation Fees	\$17,595 00
Fees from Previous Years	80 00
Operative and Mechanical Clinics	5,276 65

Total from Students and Clinics	\$22,951 65
Unexpended Balance, 1888-89	32 94

	\$22,984 59
Less Fees returned	30 00

Total Income from all Sources	\$22,954 59
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Disbursed as follows:

Current Expenses of Session	\$6,833 66
Salaries of Professors and Demonstrators	7,000 00
Principal and Interest on Laboratory Building	585 00
Surplus paid Professors, Demonstrators and Board of Trustees	6,000 00
	\$20,418 66

SUMMARY, 1888-90.

Total Income from all Sources	\$22,954 59
" Expenditures, Session 1889-90	20,418 66

	\$2,535 93
Amount transferred to Income, Session 1890-91	35 93

Balance to the Credit of Dental Department, 1889-90	\$2,500 00
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1890-91.

Tuition, Matriculation, and Graduation Fees	\$22,645 00
Fees from Previous Years	95 00
Receipts of Operative and Mechanical Clinics	5,417 40

Total from Students and Clinics	28,157 40
Unexpended Balance, Session 1889-90	35 93

	\$28,193 33
Less Fees returned	110 00

Total Receipts from all Sources	\$28,083 33
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Disbursed as follows:

Current Expenses, Session 1890-91	\$8,422 93
Salaries of Professors and Demonstrators	7,000 00
Principal and Interest on Laboratory Building	560 00
Amount of Surplus paid Professors, Demonstrators, and Board of Trustees	7,800 20
	<u>\$23,783 13</u>

SUMMARY, 1890-91.

Total Income from all Sources	\$28,083 33
" Expenditures, Session 1890-91	23,783 13
	<u>\$4,300 20</u>

1891-92.

Tuition, Matriculation, and Graduation Fees	\$18,465 00
Fees from Previous Years	295 00
Receipts of Operative and Mechanical Clinics	4,897 10
	<u>\$23,657 10</u>
Total from Students and Clinics	\$23,657 10
Less Fee returned	50 00

Total Receipts from all Sources	<u>\$23,607 10</u>
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Disbursed as follows:

Current Expenses, including Salary of Clerk, Assistant Secretary of Board of Trustees, and Assistants	\$ 7,728 56
Salaries of Professors and Demonstrators	6,950 00
Principal and Interest on Laboratory Building	535 00
Surplus to Professors, Demonstrators and Board of Trustees	5,946 76
	<u>\$21,160 32</u>

SUMMARY, 1891-92.

Total Income from all Sources	\$23,607 10
" Expenditures, Session 1891-92	21,160 32
	<u>\$2,446 78</u>

Respectfully submitted,

JAMES TRUMAN,
Dean.

APPENDIX VI.

REPORT OF THE DEAN OF THE FACULTY OF
VETERINARY MEDICINE.

TO THE PROVOST OF THE UNIVERSITY,

SIR: I have the honor of submitting the following report of the operations of the Department of Veterinary Medicine during the three years from October, 1889, to October 1, 1892.

During the three years above mentioned the department has steadily progressed in teaching facilities, and the number of students in attendance has shown an annual increase.

The desire to furnish a course in veterinary medicine as complete as possible in all particulars, together with the annual increase in the number of students, has necessitated the appointment of additional members to the staff of teachers. With this in view, in 1889 the Board of Trustees, on the recommendation of the Faculty, created a Professorship of General Biology in the department, and appointed Dr. Charles S. Dolley to the position. During the same year the Board of Trustees appointed Dr. Simon J. J. Harger, formerly Demonstrator of Veterinary Anatomy in the department, to the Assistant Professorship of Veterinary Anatomy, and in 1891 to the full Professorship of Veterinary Anatomy and Zootechnics.

In 1891 Dr. Leonard Pearson was added to the Faculty as Assistant Professor of the Theory and Practice of Veterinary Medicine.

Thus while the Faculty, during the session of 1888-89, consisted of ten members, it consisted during the session just past (1891-92) of twelve members.

During the period above referred to an increase was also made in the number of Lecturers and Demonstrators by the creation of the following Lectureships and Demonstratorships with the appointment of teachers to fill them:

Lectureship on the Theory and Practice of Canine Medicine, and the appointment thereto of Dr. Alexander Glass.

Lectureship on Veterinary Sanitary Science and Demonstratorship of Normal Histology, and appointment thereto of Dr. Robert Formad.

Demonstratorship of Veterinary Obstetrics, and the appointment thereto of Dr. Wm. H. Ridge.

Demonstratorship of Comparative Physiology, and the appointment thereto of Dr. Leo Breisacher.

The number of teachers constituting the teaching staff of Lecturers and Demonstrators was increased from eight in 1888-89, to ten in 1891-92, making a total of twenty-two teachers in the department. Since the session of 1888-89 there has been a steady increase in the total number of students in attendance, as may be observed by the following exhibit :

Total number of students in attendance during the session of 1887-88 . . 57					
"	"	"	"	"	1888-89 . . 58
"	"	"	"	"	1889-90 . . 64
"	"	"	"	"	1890-91 . . 70
"	"	"	"	"	1891-92 . . 76
"	"	"	"	"	1892-93 . . 92

In 1889 a one-story building was erected adjoining the farriery, to be used as an assembly room by the students, and granolithic and flagstone pavements were laid around the triangular grass plot of the courtyard of the department. At the same time the partition between two small rooms situated east of the main gateway was removed, and the single room thus made converted into an office to be used by the clerk to the Faculty.

In the same year the Pharmaceutical Laboratory, which occupied the room directly above the main lecture room, was transferred to the adjoining room, and the room vacated was converted into a lecture room. The collections of the Museum, which occupied part of the room, were not removed, but additional cases were constructed for their accommodation and better display.

In 1890 a building was erected in the space directly west of the main gateway to serve as a room for the meeting of the Faculty and as an office for the Dean.

Much has been done in the past three years toward making a better roadway for vehicles in the courtyard, removing the embankment, planting grass and trees, and otherwise improving and beautifying the grounds.

In increasing the equipment of apparatus, fifteen Leitz compound microscopes and four Zentmayer simple microscopes have been purchased, thus leaving in the possession of the department at the present writing thirty-three compound microscopes, of which eighteen are of Zentmayer's manufacture and fifteen of Leitz's manufacture. Of simple microscopes (Zentmayer's manufacture) the department possesses twenty-six.

For illustrating the lectures on Physiology the most improved form.

of kymographion has been purchased, as well as several pieces of apparatus from Cambridge, England. Many additions have been made to the apparatus for teaching Physiology practically in the laboratory.

The Pharmaceutical Laboratory has been furnished almost entirely with a new outfit of apparatus.

The income derived from tuition fees, together with the liberal contribution which is annually accorded the department by the generosity of the children of the late J. B. Lippincott, Esq., one of the founders of the school, is sufficient to afford reasonably fair compensation for the services of part of the teaching staff, but for those who teach the special veterinary branches alone, and are not connected with, and receive no compensation from other departments of the University, the salaries are by no means what should be accorded. It is to be hoped that the many humane people of Philadelphia who are so deeply interested in the welfare, and in the humane and skillful treatment of animals, will interest themselves in securing permanent endowments for the professorships in the special veterinary branches, thus, by the increased compensation, enabling the holders of the chairs to devote more time to original research in the hospital and laboratories in the direction of the alleviation and cure of sick and injured animals.

I have the honor to remain very respectfully yours.

JOHN MARSHALL, *Dean.*

APPENDIX VII.

REPORT OF THE VETERINARY HOSPITAL.

Because of the impossibility of oral communication between the practitioner and the patient, practical work in the Hospital is considered the most important part of the instruction in a course of Veterinary Medicine.

The Veterinary Hospital, in affiliation with the Department of Veterinary Medicine, has been conducted by the Board of Managers during the past three years, as nearly as conditions will permit, on lines similar to those observed in hospitals of human medicine.

A Hospital Staff of Veterinarians, consisting wholly of members of

the teaching staff of the School, has been appointed, and free dispensary clinics are held daily (except Sunday) from 8 until 10 A.M. A graduate in Veterinary Medicine has been appointed House Surgeon and resides in the building, making it possible for the animals to be constantly under the care of a practitioner.

During the year ending August 31, 1891, 1578 animals were treated in the Hospital without charge for professional services. During the year ending August 31, 1892, 1825 animals were treated in the Hospital.

The Hospital and its surroundings have been much improved under the direction of the Board of Managers. Plank floors laid on concrete have been substituted for the brick floors formerly in the wards, and two large box stalls have been constructed. A plank floor has been laid in the operating room, and the Pharmacy has been partially reconstructed and general repairs have been made to the roof and other parts of the building. Three offices have been provided for the accommodation of the Hospital Staff, and a large room has been furnished as a sleeping room for the detail of students who act as assistants to the House Surgeon.

An ambulance of the most approved design has been constructed for conveying sick and injured animals, and two horses for use in the ambulance have been purchased. A large shed has been erected in which to keep the ambulance and to afford shelter for the carriages of the Hospital Staff.

The embankment south of the Hospital has been sufficiently removed to permit of the construction of a wide roadway fronting the entire length of the Hospital building.

At the western end of the Hospital a two-story building, which is to be used as a Hospital for dogs, is now being erected. Much thought has been bestowed upon the plans for this building by the Board of Managers of the Hospital and by the members of the Hospital Staff, and when completed it will be the only Hospital in this country built for, and devoted exclusively to, the treatment of dogs and small animals, and unexcelled in completeness in Europe.

There is urgent need of endowments for stalls and kennels in the wards, so that the usefulness of the Hospital in caring for the sick and injured animals of persons unable to pay board may be increased.

APPENDIX VIII.

REPORT OF THE DEAN OF THE FACULTY OF LAW.

WILLIAM PEPPER, M.D., LL.D., PROVOST,

SIR : I have the honor to submit my report as Dean of the Department of Law for the scholastic years 1890-91 and 1891-92:

THE FACULTY.

Instruction was given during the year 1890-91 by the following professors and fellows, and in the following subjects: By Professor Parsons, in the Law of Partnership and of Decedent Estates; by Professor Bispham, in the Principles of Equity, Pleading and Practice; by Professor Biddle, in Torts and Evidence; by Professor Hollingsworth, in the Law of Contracts; by Professor Graham, in Criminal Law; by Mr. Pepper, the senior fellow, in Pleading, and by the Dean, in Constitutional Law and in the Law of Real Property.

During the year 1891-92, lectures were delivered by the same professors and fellows upon the same subjects, with the exception that, Professor Biddle having been succeeded by the Hon. George M. Dallas, the lectures upon the Law of Torts and Evidence were delivered by Professor Dallas; and, during the year, Mr. Pepper also delivered a course of lectures upon the Law of Corporations; Mr. Charles Cooper Townsend delivered lectures and gave instruction in the Law of Real Property and in the Law of Contracts, and Mr. George Stuart Patterson delivered lectures and gave instruction in Constitutional Law and in the Principles and Practice of Equity.

During the year 1891-92 from twenty to twenty-five lectures of an hour in length were delivered during each week that the school was in session.

The Hon. George W. Biddle having given to the University a fund as a memorial of the late Professor Biddle, the Trustees of the University have created a senior fellowship to be known as the Algernon Sydney Biddle Fellowship, the incumbent to be annually elected by the Board of Trustees upon the nomination of the Law Faculty; to hold office for one year; to perform such duties of instruction as may be designated by the Dean of the Law Faculty, and to receive an annual compensation of \$500 to be paid out of the income of the endowment made by Mr. Biddle.

The Faculty have nominated as the first incumbent of this fellowship George Wharton Pepper, Esq., who, by his distinguished services as a fellow of this school during the last three years, has merited any honor which the Faculty may have it in their power to bestow.

THE STUDENTS.

In 1890-91 there were on the rolls 176 students, of whom 52 were in the third class, 46 in the second class, 68 in the first class, and 10 were special students; and in June, 1892, the degree of Bachelor of Laws was conferred upon 50 graduates. Of the students in attendance 6 held scholarships under the contract between the University and the City of Philadelphia, and 3 held scholarships granted by the Faculty.

During 1891-1892 there were on the rolls 190 students, of whom 40 were in the third class, 65 in the second class, 72 in the first class, and 13 were special students. In June, 1891, the degree of Bachelor of Laws was conferred upon 38 graduates. Of the students in attendance, 6 held City scholarships and 7 held Faculty scholarships. Of the 190 students on the roll in 1891-92, 39 came from counties in Pennsylvania other than Philadelphia, and 19 came from States other than Pennsylvania. Of the 190 students enrolled, 12 failed to attend; and of the 178 students in attendance during 1891-92, 13 held scholarships, 57 paid \$105 each, 88 paid \$100 each, 18 paid \$55 each, 2 paid \$50 each, and 4 paid only matriculation fees, making the total receipts from tuition fees \$15,895.

The following comparative table shows the increase in the years given in the number of Professors and Fellows:

	Students.						
	Dean.	Professors.	Fellows.	Third.	Second.	First.	Special.
1883-4	1	4			34	60	7
1884-5	1	4			44	63	2
1885-6	1	4			52	69	2
1886-7	1	4			54	73	2
1887-8	1	4			64	78	7
1888-9	1	4			55	84	5
1889-90	1	5	1		55	51	19
1890-1	1	5	1	52	46	68	10
1891-2	1	5	3	40	61	66	11
							Total.

The following is a summary of the results of the Annual Examinations of 1891-92.

In the graduating class 3 students attained graduating averages between 90 and 95; 5 students attained graduating averages between 85 and 90; three students attained an average for the year of between 95 and 100; ten students attained an average between 90 and 95; 3 students attained an average between 85 and 90; 22 students attained an average of over 50 and less than 90; 2 students failed in their examinations and were not recommended for a degree, and 38 students were graduated.

In the second year's class 2 students attained averages of between 95 and 100; 4 students attained averages of between 90 and 95; 3 students attained averages of between 85 and 90; 34 students attained averages of between 50 and 90; 9 students were conditioned in one subject; 4 students were conditioned in two subjects; 5 students having been conditioned in three or more subjects were dropped from the class; and 43 students were passed without conditions into the graduating class of 1892-93.

In the first year's class 1 student attained an average of more than 95; 1 student attained an average of between 90 and 95; 2 students attained an average of between 85 and 90; 42 students attained an average of between 50 and 90; 4 students were conditioned in one subject; 5 students were conditioned in two subjects; and 11 students having been conditioned in three or more subjects were dropped from the class; and 46 students were passed without conditions into the second year class of 1892-93.

The prize lists and honor lists of 1890-91 and 1891-92 are printed in the annual catalogues of the University.

THE GEORGE BIDDLE MEMORIAL LIBRARY.

This Library was founded by the gift of 5077 volumes by the family of the late George Biddle, Esq. Effingham B. Morris, Esq., has deposited in the Library 1127 volumes; H. LaBarre Jayne, Esq., has given 192 volumes; sundry donors have given 61 volumes; the Faculty have provided by gift or purchase 1958 volumes, and the Library now numbers 8415 volumes.

The Department has since 1886-87 annually set aside 12 per cent. of its tuition fees and amounting, to 1891-92 inclusive, to the sum of \$7,888.61, and disbursed that amount for the maintenance of the

Library, including the purchase of books and the salary of the librarian and janitor, and the purchase of library stationery.

1887-88	.	\$1300 00
1888-89	.	1443 40
1889-90	.	1300 00
1890-91	.	1803 00
1891-92	.	1992 21
Total		<hr/> \$7888 61

Mr. S. Stanger Iszard, the Librarian, has managed the Library with ability and fidelity since it has been under his charge.

THE FINANCIAL RELATIONS OF THE DEPARTMENT TO THE UNIVERSITY.

The University loaned to the Department the sum of \$2500 to defray the expenses of furnishing the Lecture Rooms and Library Room in the Girard Building. The interest upon this loan at 5 per cent. has been paid to the University, and \$1032.26 has been repaid to the University on account of the principal of the loan, reducing that principal to \$1467.74.

Since the removal of the Department to the Girard Building the Department has paid from its own receipts the rent of its Library Room and Lecture Rooms, and the salaries of its Dean, Professors, and Fellows, and the University has been at no charge for the operation of the Department other than the Department's share of the salaries of the Provost and Secretary of the University, and the Department's share of the expenses of the Annual Commencement.

Beginning with 1887 the Department has paid to the University net receipts (exclusive of the payment of interest upon and principal of the furniture loan) aggregating, to 1891-92 inclusive, \$7045.82, as follows:

1886-87	.	\$377 60
1887-88	.	945 20
1888-89	.	1002 00
1889-90	.	838 00
1890-91	.	1942 08
1891-92	.	1940 94
Total		<hr/> \$7045 82

CONCLUSION.

My colleagues, the Professors and the Fellows, have rendered faithful, intelligent, and self-sacrificing services to the University, and the results of their work are seen in the continued growth and prosperity of the school.

I am, with sincere respect,

Your obedient servant,

C. STUART PATTERSON,

Dean.

APPENDIX IX.

REPORT OF THE DIRECTOR OF THE LABORATORY OF
HYGIENE.

The Laboratory of Hygiene was formally opened on February 22, 1892, and a course in Elementary Bacteriology, covering three months, five days each week, from 9 to 12 A.M., was given, and attended by five students, three of whom were graduates in medicine. A course of Lectures upon General Hygiene was given to the first class in the Medical Department, including one lecture a week throughout the academic year, a course of Lectures on Ventilation, House Drainage, etc., was given to the Class of Architects and Engineers, and a course of Six Lectures upon the Hygiene of Apartments occupied by the Sick was given to the Training School for Nurses in the University Hospital.

Bacteriological examinations were made in seven cases in the University Hospital, in several cases in the Church House for Children and in the Children's Hospital, and in a number of cases presented by physicians for positive diagnosis in suspected diphtheria, anthrax and hydrophobia.

Inspection of premises, examination of water supply, plumbing, etc., were made in several cases, including an outbreak of typhoid in a large boarding school, and in a village, and advice given in each case.

Examinations of, and experimental work upon, the milk and tissues from milch cows suspected of being infected with tuberculosis, experiments upon the value of certain disinfectants, bacteriological

studies upon various bottled table or mineral waters, examinations of samples of suspected drinking water and of milk, and consultations in a case of leprosy, several cases of diphtheria, and an outbreak of anthrax among cattle in Delaware have also occupied the time of the Laboratory Staff during the spring and summer of 1892.

With the beginning of the academic year 1892-93, the Laboratory announced a course in Practical Hygiene, a course of Elementary Bacteriology, a course in Clinical Bacteriology and Chemistry, a course in Advanced Bacteriology, and a course in Physiological Chemistry, with special attention to the products of Bacterial Growths.

The first two of the courses above mentioned began October 3, and are to last eight weeks, five days in the week, from 9 A.M. to 12 M., with the privilege of continuing work until 5 P.M.

Thus far the courses in Elementary and Advanced Bacteriology are the only ones to which students have applied for admission. In the elementary course there are six students, and in the advanced course two students. Of the six students in the elementary course, one is a candidate for the degree of Doctor of Philosophy, and has studied Bacteriology as one of the minor subjects.

In connection with the instruction in Bacteriology, the main difficulty experienced by the Laboratory is in obtaining continuous attendance on the part of the students. The work is of such a nature that satisfactory progress can only be made by individual attention to the work during the time the course is given; a day lost in the middle of the week will frequently so disarrange the work of the week as to necessitate a repetition of all that might have been done in the days preceding. The character of the work is such that by the continuous application of the student for but a relatively short time, much more can be accomplished, and far greater progress made, than by irregular and discontinuous attention to work for a very much longer period.

There are few departments in which it is more essential for this to be borne in mind by the student than in the Department in Bacteriology. The hours of instruction are from 9 A.M. to 12 M. in the autumn course, and from 2 to 5 P.M. in the spring course, between which hours instructors will be in the Laboratory, and will direct and assist in the work of the students.

In September, 1892, Dr. Hill Sloane Warwick, College of Physicians and Surgeons, New York, Ph.D., University of Pennsylvania, was appointed Assistant in Chemistry. The work of Dr. Warwick will consist in assisting in the course of Practical Hygiene,

in the course in Clinical Chemistry and Bacteriology, and in the course in Physiological Chemistry.

In September, 1892, the Fellowship endowed by Mrs. Scott, as a memorial of the late Thomas A. Scott, Esq., of Philadelphia, was filled by the appointment of James Homer Wright, A.B., Johns Hopkins University, Baltimore, and M.D., University of Maryland, Baltimore.

The work of Dr. Wright, now being conducted in the Laboratory, and which will continue through the academic year, will consist in a detailed chemical and bacteriological study of the drinking water supply of Philadelphia. In addition to this, Dr. Wright will present at some time during the year a contribution in which will be embodied the results of his work. He will also probably deliver a short course of lectures upon the subject of domestic water supplies.

The regulations governing the Thomas A. Scott Fellowship in Hygiene are hereto appended :

REGULATIONS GOVERNING THE THOMAS A. SCOTT FELLOWSHIP IN HYGIENE.

1. Applications must be made in writing to the Provost of the University of Pennsylvania, and should be forwarded prior to May 1 of the year of the candidature.

2. The holder of the Fellowship shall not be more than thirty years of age at the time of his appointment.

3. The application must be accompanied by evidence of a liberal education, such as the diploma of a college of good repute (the appointment being regarded as an equivalent to the baccalaureate degree), by evidence of decided taste and ability in the direction of special study and scientific work, such as an example of some work already performed, and of good moral character, such as testimonials from his last instructors.

4. The holder of the Fellowship will be expected to perform such duties as may be allotted to him by the Director of the Laboratory in connection with his course of study, to act, when called upon, as examiner or assistant examiner; to use his influence for the promotion of the objects and good order of the Department, and, in general, to forward the efficiency of the University as far as may be in his power.

5. He will be expected to devote his time, under the direction of the head of the Department, to the prosecution of special studies having relation to the causation and prevention of disease, or to the

improvement of health, and before the close of the year to give evidence of the progress he has made by presenting a thesis, the report of the results of his research, the delivery of special lectures, or some similar method which will be satisfactory to the electors.

6. While holding the Fellowship he will not be permitted to engage in any work other than that directly bearing upon the interests of the Department.

7. All work performed is to be considered the property of the Laboratory, and to be published only with the consent and approval of the Director of the Department.

8. The Fellow will be expected to aid in the instruction at the Laboratory by lectures or otherwise, as may be directed, but will not be permitted to teach in any other institution during the time of holding the Fellowship.

9. He may be reappointed at the end of the year, but only for exceptional reasons.

10. The holder is exempt from tuition fees. In case of resignation, promotion or removal from the Fellowship, payments will be made for the time during which the office shall have been actually held.

11. The Electors have the right to declare the Fellowship vacant if its holder prove in their opinion unworthy, and no further salary shall be paid to the person thus removed.

APPENDIX X.

REPORT OF LIBRARIAN.

WILLIAM PEPPER, M.D., LL.D., Provost.

The past three years, covered by this report, are among the most memorable in the history of the Library.

Until the close of the College session of 1889-90 the great bulk of our books were stored, in very inadequate quarters, in the College Department; but at the end of that term they were transferred to, our new Library building, which was opened October 1, 1890, and, more formally, with appropriate dedicatory proceedings, February 7, 1891. Our very beautiful edifice was an experiment in library architecture, both in the construction of the book-stack, particularly as

lighted from above, and in the introduction of several new devices in the reading hall and cataloguing room. It is matter of congratulation that the experiment has proved successful, and that, after two years' use of the building, we find little to alter or improve.

The increase of the Library during these years has been most gratifying, and altogether worthy of its new domicile. The total number of accessions amount to 48,986 bound volumes and 24,412 unbound volumes and pamphlets, exclusive of periodicals regularly subscribed for or presented.

Chief among these additions is the library of the late Professor Ernst von Leutsch, of Göttingen, comprising over 20,000 volumes, besides his own valuable manuscripts, purchased with money contributed by friends and alumni of the University through the zealous efforts and earnest recommendations of Professor F. A. Jackson. Added to our Allen and Pott Libraries, and works derived from other sources, it forms, it is believed, the finest classical library in the country.

Next in importance, probably, is the Library of the School of American History and Institutions, acquired largely through the interest and exertions of Professors J. B. McMaster and F. N. Thorpe. This consists of about 12,000 volumes, distributed as follows: United States documents, 4500; State laws, 2100; other State documents, 1500; municipal documents, 500; Canadian documents, 550; the Jameson Library of Constitutional Conventions, 400; and miscellaneous books, 2450. In connection with other United States documents in our Library, this constitutes one of the three largest such collections in existence.

Another valuable addition to our shelves is a choice Library of German literature, numbering 1552 volumes, purchased with funds procured by Professor Oswald Seidensticker.

With money contributed for that purpose a good Library of Psychology is forming, comprising already 106 volumes.

The William Pepper Library has been founded, and comprises at present 538 volumes, chiefly on medicine.

The Isaac Norris Library has been liberally endowed, and purchases of 24 volumes have recently been made out of that fund.

The J. B. Lippincott Library has been created by a gift of \$10,000 from the family of Mr. Lippincott for the acquisition of works of English literature. It numbers at present 1211 volumes.

Out of the fund contributed by Mr. Joseph Wharton 200 volumes have been bought, relating to Finance and Economy.

The classes in the College Department have continued their praiseworthy custom of presenting books to the Library on occasion of their graduation, and have given as follows: The Class of 1888, 1 volume (additional to those already reported); the Class of 1890, 34 volumes; the Class of 1891, 21 volumes; and the Class of 1892, 25 volumes.

There have been added to the Krauth Library of Philosophy 16 volumes, to the B. B. Comegys, Jr., Library of Philosophy, 55 volumes, and to the Henry Seybert Library of Modern Spiritualism 107 bound volumes and 57 pamphlets.

The Tobias Wagner Library has been increased 611 volumes.

The George Biddle Memorial Law Library has received accessions to the number of 3116 volumes, and contains at present 8418 books.

Conspicuous among the many gifts to the Library is the large and valuable collection of books on Geology, Palæontology and Natural History, which belonged to Dr. Joseph Leidy, presented by Mrs. Leidy.

Mrs. Charles A. Ashburner presented the geological library of her husband, numbering 656 bound volumes, 867 unbound pamphlets and periodicals, and 110 maps.

Mr. Francis Campbell Macauley gave 221 volumes, chiefly French, Spanish, and Italian literature.

Mr. Brinton Coxe contributed 25 volumes of *Sacræ Rotæ Romanæ Decisiones*, and other works of Canon Law.

The Rev. Frederic M. Bird presented the original manuscripts of his father's, Dr. Robert Montgomery Bird's, novels, "Nick of the Woods," "Calavar," and "Hawks of Hawk Hollow," and a portion of that of "Robin Day," as well as Dr. Bird's medical lectures.

The Rev. Dr. William H. Furness gave 44 volumes on Slavery.

From Mr. Richard Henry Bayard Bowie we received 229 volumes of Chinese literature, and 194 books on other subjects, from the fine library of his father, the late Richard Ashhurst Bowie.

From Mrs. Horace Binney Hare, 274 bound volumes and 130 unbound volumes and pamphlets, chiefly medical and chemical.

From Professor Alfred Stillé, M.D., 371 bound volumes, and 118 unbound volumes and pamphlets, medical and miscellaneous.

From the family of Major-General George Gordon Meade, 325 bound and 232 unbound miscellaneous books.

From Mr. Archibald R. Montgomery, 278 bound volumes, and 56 unbound books and pamphlets.

From Mrs. Arthur Biddle, 147 books.

From Mr. Clarence H. Clark, a fine copy of the Medallic History of the Netherlands, in 27 volumes.

From Mrs. H. H. Smith, 160 volumes from the surgical library of her husband, the late Professor of Surgery in the University.

From Mr. Philip S. P. Randolph 541 bound, and 46 unbound books, constituting the medical and surgical library of his great-grandfather, Philip Lyng Physick, M.D., Professor of Surgery and Anatomy in the University.

From Mr. Joseph S. Harris 424 bound volumes, and 97 unbound volumes and pamphlets, medical, historical and miscellaneous.

In addition to the above, gifts specially worthy of mention have been received from Dr. Horace Howard Furness, Dr. S. Weir Mitchell, Mr. J. Vaughan Merrick, Hon. Henry Reed, Mr. John C. Sims, Jr., Mr. Charles Hare Hutchinson, Professor W. P. Wilson, Professor Fairman Rogers, Major-General S. W. Crawford, Professor O. Seidensticker, Dr. J. H. Musser, Mr. Craig D. Ritchie, Mr. J. Dickinson Sergeant, Mr. Charles Chauncey, Dr. H. C. Wood, Mr. Stuart Wood, Mr. Stewart Culin, Dr. C. C. Abbott, Dr. Charles Schäffer, Rev. James W. Robins, Mr. Joseph Hartshorne, Dr. Horace Jayne, Mr. C. C. Roberts, Dr. James Collins, Dr. William Savery, and Mrs. Charles P. Keith.

The cataloguing of the Library has proceeded as usual, and during the past three years 96,854 cards have been written, representing 38,637 volumes and 43,192 works.

The Library is open daily, except Sundays and Legal Holidays, during the College session, from 8.30 A.M. to 5.30 P.M., and, from the close of the College term in June till the reopening in October, from 9 A.M. to 5 P.M.

Respectfully submitted,

GREGORY B. KEEN,
Librarian.

APPENDIX XI.

REPORT OF COMMISSION TO THE TERCENTENARY OF THE UNIVERSITY OF DUBLIN.

TO THE BOARD OF TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA:

Having been honored with the appointment of clerk to the delegation designated by your honorable body to represent the University

of Pennsylvania at the Tercentenary Celebration of the University of Dublin, I beg leave to present the following report :

On Tuesday, the 5th day of July, 1892, the guests and delegates, in full academic costume, were received by the Provost in the Examination Hall. After the reception, which lasted about an hour, the procession was formed in the quadrangle and marched through the gaily decorated and crowded streets to St. Patrick's Cathedral, where the celebration was duly inaugurated by a special service appointed for the occasion. The sermon was by the Very Reverend Henry Jellet, D.D., Dean. At four o'clock in the afternoon the Fellows' Garden was the scene of one of the most beautiful and interesting ceremonies of the week, when Miss Salmon, daughter of the Provost, planted in the presence of more than four thousand invited guests a mulberry tree as a companion to the ancient tree that has graced the gardens for so many centuries. During the planting a beautiful Latin ode, written by Prof. Tyrrell expressly for the occasion, was sung. At nine in the evening the Tercentenary Ode was performed in the Leinster Hall by the University Choral Society, before a brilliant and enthusiastic audience. The day's festivities were then brought to a close by a ball at the Mansion House, tendered by the Lord Mayor and Lady Mayoress to the University and her guests.

At noon on Wednesday the Senate of the University met in the Examination Hall to confer honorary degrees upon certain of the more distinguished of her guests. The honorary graduates led the procession as it entered the hall, and were followed by the Professors, Fellows, and by the University Caput, consisting of the Earl of Rosse, Chancellor of the University; the Rev. Dr. Salmon, Provost of the University, and the Rev. J. T. Barlow, Senior Master non-Regent. The honorary degrees were then conferred upon eighty-three distinguished men, each group being welcomed by Prof. Tyrrell with an appropriate Latin speech setting forth the services of Art, Science or Literature that were thus recognized by the University. When the degree of Doctor of Medicine was conferred upon John Shaw Billings, of Washington, Professor of Hygiene in the University of Pennsylvania; Thos. Bryant, Pres.R.C.S.; Sir Andrew Clark, Bart., Pres.R.C.P.; Adolf Gusserow, of Berlin; Jonathan Hutchinson, of London, and Thos. Grainger Stewart, of Edinburgh, Prof. Tyrrell said :

"Ad Doctoratum Medicinæ accipiendum præsto sunt viri fama omnes super æthera noti. Utinam omnes laudibus idoneis efferre

vacaret. Sed Hippocratem illum, huius artis saluberrimæ et venerandissimæ paene auctorem, videor mihi videre adstantem et admonentem jucundo hoc munere esse supersedendum, brevem enim esse vitam, longam artem."

Other Americans who received honorary degrees were: Prof. I. H. Hall, of New York; Prof. J. H. Thayer, of Cambridge; Prof. O. C. Marsh, of New Haven; Simon Newcomb, of Washington, and Gen. F. A. Walker, of Boston.

On Wednesday afternoon a garden party was given by the Lord Lieutenant and Countess of Zetland at the Vice-Regal Lodge, at which more than a thousand guests were present. On Wednesday evening the Tercentenary Banquet was given in the Leinster Hall. The chair was occupied by the Earl of Rosse, Chancellor of the University. At his right were His Excellency the Lord Lieutenant, the Lord Chancellor of Ireland, the Lord Primate, the Marquis of Londonderry, Lord Kelvin, Sir Frederick Leighton, the Rt. Hon. David Plunkett, and Dr. Ingram, F.T.D.C. On the left of the Chairman were the Provost of Trinity College, Dublin; General Viscount Wolseley, the Lord Mayor of Dublin, the Lord Archbishop of Dublin, the Marquis of Dufferin and Ava, Prof. Lannelongue, of Paris, the Bishop of Derry, the Master of Trinity College, Cambridge, and Mr. Lecky. Among the toasts of the evening were: "The Universities," proposed by Dr. Ingram, to which the Bishop of Oxford and Prof. Lannelongue responded; "Trinity College, Dublin," proposed by the Master of Trinity College, to which the Provost and the Hon. David Plunkett and Mr. Lecky responded; "Science, Literature and Art," proposed by Lord Dufferin, to which Lord Kelvin responded on behalf of Science, the Bishop of Derry on that of Literature, and Sir Frederick Leighton on that of Art.

On Thursday, July 7, the guests and delegates, Faculty, Fellows and Caput of the University, formed in the quadrangle and proceeded to the Leinster Hall, where the addresses of congratulation were presented to Trinity College, Dublin, by the visiting delegates on behalf of the universities and other learned bodies there represented. One representative of each country made a short speech, and in this capacity President Gilman, of the Johns Hopkins University, gracefully and suitably voiced the sentiments of America. Professor Edmund J. James being unfortunately unable to appear, the University of Pennsylvania was represented by Professor John Shaw Billings and Dr. Wm. Romaine Newbold. The congratulatory

address, presented by Professor Billings on behalf of the University, was as follows:

UNIVERSITAS PENNSYLVANIENSIS UNIVERSITATI INCLITÆ
DUBLINIENSI.

S. P. D.—Pergratum fuit nobis quos ad dies festos ob elapsam Universitatis Vestræ celeberrimæ sæculum tertium concelebrandos nos invitavistis. Cum ab omnibus quamvis rudes in philosophia ac literis in memoria habentur habebunturque semper nomina illa clarissimorum civium vestrorum Berkeleyi et Burkei, ita ab Americanis præcipue qui hominum eorum semper gaudent recordari beneficia patriæ suæ data, illis quidem honestissima sibi autem utilissima. Neque liberalitatis oblivisci possumus nos quidem civium Dublinensium in Præfectum nostrum illo tempore cum scholæ nostræ, tum primum institutæ, opem atque auxilium petebat, humanitatisque in eundem gravi et periculoso morbo laborantem, postremo præcipue honoris ei ab Universitati Dubliniensi habiti. Theologiæ enim doctoris dignitatem Præfecto Smithio cum pro meritis ejus clarissimis tribuit Universitas vestra tum maxime propter operam quam dedit ut apud nos quoque terrarum novarum atque pæne incultarum incolas studium litterarum augeret, quo nostratibus doctrinam illam præberet in omnibus artibus liberalibus quæ apud vos tunc florebat, ut nunc quoque floret ad magnam gloriam patriæ civiumque omnium utilitatem.

Floreat in multa etiam sæcula Universitas Dubliniensis, tot virorum illustrium Mater illustrissima.

VALETE.

Philadelphię, Kal. Jun. A.D., MDCCCXCII.

On the afternoon of the same day the guests and delegates were most hospitably entertained by Lord Wolseley, at the Royal Hospital, Kilmainham, and in the evening two plays were presented at the Gaiety Theatre by the graduates and undergraduates of the University.

On Friday, at eleven in the morning, certain of the guests addressed the students in the Examination Hall. Among those who spoke were Gen. F. A. Walker, of Boston; Prof. Waldeyer, of Berlin; Prof. Vambery, of Buda-Pest, and Prof. Max Muller, of Oxford. The festivities of the week were then concluded by a brilliant ball given by the University in the Leinster Hall.

On Monday, Wednesday and Friday afternoons athletic contests of

various kinds took place on the college grounds, and were witnessed by vast throngs of people. On Friday afternoon the Earl and Countess of Ross entertained the delegates at Birr Castle, and on Saturday many of the visitors, by special invitation of the Royal Society of Antiquaries of Ireland, accompanied the members of the Society on an excursion to Kells, County Meath.

In concluding this report your delegates wish to express their profound appreciation of the courtesy that was extended to them and others by the people of Dublin, and more especially by the authorities of the University, the learned societies and social clubs of the city, and by those gentlemen whose hospitality they enjoyed. It is the sense of your delegates that no attention which courtesy and hospitality could suggest was omitted, and circumstances so happily co-operated with the efforts of the authorities as to make the Tercentenary Celebration of Trinity College, Dublin, in the judgment of all those who had the privilege of taking part in it, as brilliant a success as its promoters could have wished.

JOHN SHAW BILLINGS, }
EDMUND J. JAMES, } *Delegates.*

For the delegation,
WM. ROMAINÉ NEWBOLD.

NOTE.

It was intended to insert as an appendix abstracts from the Annual Reports made by the Treasurer to the Board of Trustees, including lists of money donations received by him for the various interests of the University. Circumstances have prevented the publication of his last report at this date, and it has been decided to defer the general financial statement to a later publication, in which fuller details will be given than would be possible in the limited space of these appendices.

APPENDIX XII.

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PRE-1892-1894
1877-1878-1879-1880
REPORT

OF

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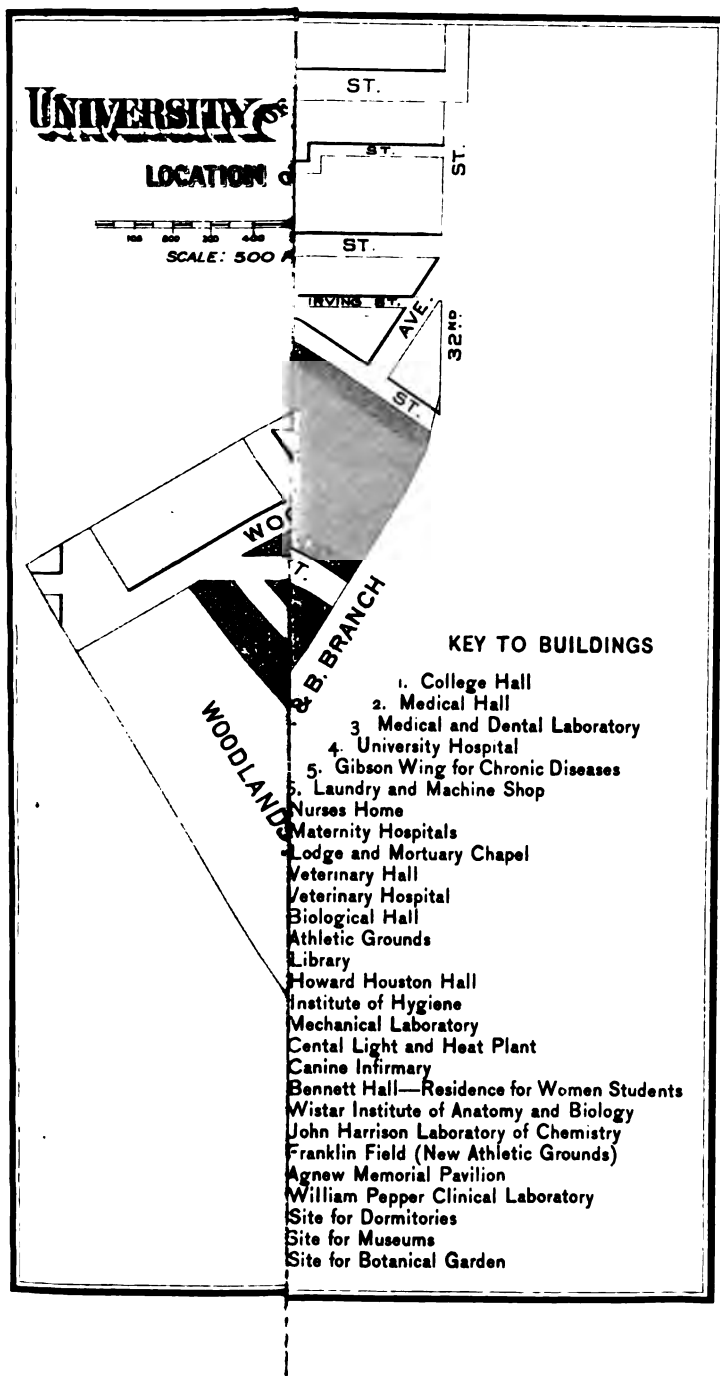
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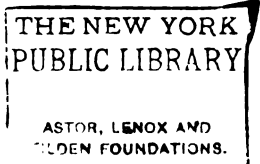
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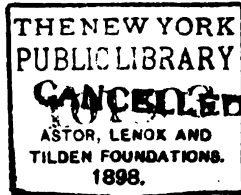


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REPORT OF THE PROVOST OF THE UNIVERSITY OF PENNSYLVANIA,

From October 1st, 1892, to June, 1894.

TO THE HONORABLE BOARD OF TRUSTEES.

GENTLEMEN:—I have the honor to submit to you the following report of the operations of the University from October 1, 1892, to June, 1894. I shall be pardoned for dwelling more fully upon certain topics, not only on account of their importance, but because this is the last report I shall have the occasion to prepare. It is a subject of profound thankfulness that at the close of my period of service in the responsible office to which your Board invited me in December, 1880, I am able to point to a high state of advancement and prosperity of our well-beloved University. It is indeed the rapidity of growth and expansion of the University, and the successful accomplishment of various comprehensive measures, which, as explained in my letter of resignation (submitted to your Board on April 23, and reprinted as Appendix No. I of this report), have made me feel justified in withdrawing from a post of so much usefulness.

Since the date of my last report the University has met with two serious losses by death. Colonel Joseph D. Potts had been for some time unable to attend the meetings of the Board on account of impaired health, and when your Board voted him a leave of absence, it was with the hope that he might return with renewed vigor to the post which he so ably filled. This hope was doomed to disappointment. The resolutions of regret and sympathy, which you adopted December 5, 1893, fittingly express the appreciation in which his seven years of wise counsel and faithful and generous service on your Board were held by his associates. The large plans he had formed for the development of certain branches of the University, frustrated unhappily by his decease, bore testimony to his eminent sagacity, his wise

liberality, and his genuine devotion to the cause of higher education.

Professor Oswald Seidensticker departed this life, after a brief illness, on January 10, 1894. For years he had been in the service of the University, and his profound and varied learning, his fidelity to duty, and the beauty of his modest and unassuming character, had won for him the highest regard and warm affection not only of his colleagues and pupils, but of the community at large. Let it not be forgotten that the valuable acquisition of the Library of German Literature was not only due to the personal efforts of this earnest teacher, but was also a testimonial to the esteem in which his zeal and fidelity were held.

The changes in the teaching force are noted in Appendix No. II.

It has been a subject of frequent comment, and of occasional criticism, that the creation of new departments and the establishment of new chairs have been at a rapid rate during the past thirteen years. This expansion has, however, proceeded upon a definite plan, by which several loosely associated schools have been gradually approximated and ultimately combined, with additional departments of recent creation, in harmonious and equitable co-operation. It has been clearly pointed out by Professor Thorpe in the important memorial volume recently published by the National Government that this new development is the legitimate outcome of the broad basis originally secured for the University by the philosophical Franklin. Historical research (carefully verified by a committee appointed by your Board) has shown that the foundation of the University of Pennsylvania is to be referred to the year 1740, thus making it the fourth in point of age among the educational institutions of this country. From its earliest days it has been honorably distinguished by the origination of important educational measures subsequently adopted by sister institutions. It seems natural, therefore, to find that the title of University was first used in America in 1779, in connection with this institution. In the form it has reached of recent years under your progressive policy, it represents, with one serious break in the circle, the rounded and complete form of the typical American University. The organic connection so happily effected in 1888 with the public school system of Philadelphia, by the establishment of fifty prize scholarships; the thoroughly reorganized College Department, fully equipped in all

branches, and surrounded with ample territory for the construction of dormitories, and for the cultivation of athletic exercises and sports ; the equitable provision for the admission of women to the highest faculty* and degree on the same conditions as men, without involving the necessity of co-education in the undergraduate classes ; the group of professional schools organically connected with the College Department and both giving to and receiving strength from the latter, though each possessing its independent establishment and individuality, its honorable traditions and its own special line of development ; and finally the comprehensive Faculty of Philosophy crowning the entire structure, and inviting earnest students to advanced work and original investigation : these are the large features of an academic plan, the development of which may be confidently entrusted to the future.

The obvious point of incompleteness is the absence of dormitories. I have taken such frequent opportunities of urging the absolute necessity of dormitory life as an element in a complete University that I must limit myself to an expression of satisfaction that at last this necessity is clearly recognized on all sides. Students will not be required to live in dormitories, but until the opportunity is afforded to those students, and they constitute a considerable proportion of the student class, for whom such residence is desirable, Philadelphia will continue to suffer from the diversion of important clients, and the University will continue devoid of a truly vital element of University life. With the ample space now at your disposal for their location, the financial arrangements will surely be found easy, since here as elsewhere, the funds so invested will be found permanently productive. Just as the University needs the great libraries and museums and the costly equipment of special laboratories to foster advanced study and original research ; just as it needs the aid of University Extension and of other allies by which the mass of the community may be reached, so that the University shall do its large share in developing civic character, so does the College Department at least, demand a well-organized dormitory system where judicious influence shall work for the development of individual character. After the dormitories will naturally follow the Central Dining

*The resolution of your Board opening the Faculty of Philosophy to women, taken in 1891, was the inauguration of a policy which has already been followed by other leading institutions.

Hall ; the Students' Hall for social intercourse and the numerous agencies of the daily life of a great body of students ; the general Gymnasium in connection with Franklin Field ; the general University Chapel. The proximity of the University to the fine auditorium of the Academy of Music seems to postpone to a more remote date the construction of a large hall for Commencement Exercises and other public functions.

The numerous demonstrations your Board has given of the possibility of allowing considerable independence to organizations, which are nevertheless integral parts of the University, indicate clearly that the University has entered upon a career of growth, the future extent of which is practically unlimited.

It is to be hoped that the success which has attended the establishment of the Graduate Department for women, with its own Board of Managers, and its Hall of Residence, generously presented by Colonel J. R. Bennett, will be followed speedily by the adequate endowment of a College for Women, in which may be provided a complete curriculum. Barnard College in connection with Columbia, is a stimulating example of the admirable results that would follow such a foundation ; while the more recent establishment of Radcliffe College at Harvard, attended as it has been with a serious loss to Philadelphia in the decision of Miss Irwin to accept its Deanship, must surely awaken the friends of the Higher Education of women here to earnest efforts to provide larger facilities in connection with our University.

It can scarce be doubted that there will soon follow in America, associated with such of the leading universities as are suitably conditioned, the development of a system of colleges in the universities resembling more or less the type presented by Oxford and Cambridge. Our University system is exhibiting so much flexibility and strength, and the broad University idea is becoming so firmly fixed, that no retrograde tendency need be feared from the admission to the University system of separate colleges, with independent tutorial or even professorial staff. The immense aggregations of young students in the undergraduate classes of a great University, seem to call for more definite organization and supervision than is apparently to be expected from the present academic and dormitory system. The large power retained by the governing board of an American University—as notably in your own case ; the high disciplinary authority entrusted to the deans of the several great departments ; the

rigid educational standard sure to be maintained by the Faculty of Philosophy and the University Council, would seem to minimize, or indeed to wholly obviate here, the dangers which have called for such extensive reforms at the English universities.

It is evident that the appearance of this comprehensive policy and spirit of administration will be the strongest possible inducement to generously disposed persons, to attach their foundations to old and vigorous institutions instead of calling into existence new establishments whose installation is prodigiously expensive, and whose destiny is uncertain even when hedged in with the shrewdest legal provisions.

It is with especial satisfaction that in this connection, I report the completion and formal opening on May 21, 1894, of the Wistar Institute of Anatomy and Biology. The amount already provided by the founder, General Isaac Jones Wistar, is large, about \$265,000; it is his intention to increase this materially in the future. But it should be recognized that the result already accomplished by this benefaction could not have been secured within this generation, if at all, by even a much larger sum, if applied to the creation of a wholly independent institution. The University ceded to the Wistar Institute a large and very valuable piece of land as a site, and the Medical Faculty transferred to it the extensive Wistar and Horner Museum, the oldest and most interesting historically of anatomical collections in this country. A magnificent museum building has been constructed; the collection has been installed; important gifts of other congenial collections have already been received; and notably one of great value from Dr. Horace Jayne; the American Anthropometric Society has transferred its collections and its headquarters from the University to the Institute; a Society of Anatomy and Biology will begin its regular meetings this fall; original research and advanced instruction are in operation. A great monument has been created to the first eminent anatomist of America as well as to the munificent founder of the Institute; the life of a great University has been quickened and enriched; immense reciprocal advantages have been secured for the Institute. Yet this Institute, though legally and financially a creation utterly distinct from the University, and with its autonomy guarded rigidly, is administered by a board of nine members, of whom six are appointed annually by the Trustees of the University. It is safe to predict a future of peculiar usefulness for this foundation.

It is to be hoped that its example will impress itself on many who, in seeking for the safest and best mode of accomplishing specific results with their wealth might otherwise have overlooked the possibility of securing, in close affiliation with some existing institution of large resources and of high repute, a foundation whose individual memorial character, whose exact definiteness of purpose, and whose strict financial independence may be safeguarded, as is well-nigh impossible, and certainly far more costly when attempted in the form of a wholly new creation. The details of this foundation are fully set forth in a pamphlet, which includes also the addresses delivered by the Provost, by Professor William Osler of Johns Hopkins, and by Dr. Harrison Allen, the Director of the Institute. The work of the Institute will not be limited to the extension of the great collections already entrusted to it. Ample facilities are provided for anatomical and biological investigations; and instruction will be given to those who design to pursue advanced work in these directions. It is proposed to organize a Biological Association which shall hold regular scientific meetings. Its Journal of Transactions will be published as well as the results of investigations conducted in the Institute. It is easy to see what a magnificent addition this is to the resources, not of the University alone, but of the entire country; and what an incentive it must prove to the acquisition of analogous foundations for advanced work in connection with each great branch of science.

By ordinance approved March 30, 1894, the city authorities transferred in trust to the University a tract of land of more than eight acres, which extends the University domain to the southeast. The conditions attached to this trust are that, within five years from the above date, this tract shall be laid out as a park, and that there shall be established upon it a botanic garden and a museum building. The exact language of the ordinance will be found in Appendix No. III. It speaks eloquently for the dignity and importance of true University work in this city, that this ordinance was passed with practical unanimity by both branches of Councils, and that the Mayor made the act of signing it the occasion of a noteworthy utterance as to the generous policy which should govern the city in all her relations to the University. The acquisition of this valuable tract of land is another and highly important step in the realization of a plan which I had the honor of submitting to you more than twenty-two years ago and which has been

unremittingly pursued until now it is practically accomplished.* It secures a compact body of fifty-two acres of ground, near the centre of the city, all of which is available for University purposes. Moreover, it has fortunately been provided that this extensive domain is held subject to so many trusts of an educational character that the future alienation of any considerable portion of it is rendered impossible, no matter how strong might be the temptation to such a ruinous policy. No one who has not brooded anxiously for long years over the possible chance for the development of a truly great University here can realize the contentment afforded by the knowledge that an adequate and indeed an unequalled domain has been secured for all time. No one who is familiar with the unfortunate history of the University of Paris will fail to recognize the validity of this contentment. A School of Technology, an ordinary College even, may exist in a great city and draw large numbers of students without the possession of more ground than that needed for the halls of recitation. But for the development of a University, a true Schola Major, the fundamental requisite is a certain breadth and largeness of scope which will admit and invite the erection of great libraries, extensive museums, laboratories for original research, and all cognate foundations. Hence it is that you cheerfully endorsed the extensive obligations which I ventured to suggest in connection with this last, as in like manner with all the former of the transfers of land from the city to the University. But, in order that the resources of the University should not be unjustly taxed to comply with the serious conditions above named, your Board has formally transferred to the Department of Archæology and Palæontology the duty of carrying out these conditions, accompanying this with the grant of such authority as may enable it to succeed in this momentous undertaking. It involves the effort to secure a further grant of land from the city so as to afford in all at least twelve acres as the site for the great Museum and the Botanic Garden ; the collection of funds for the erection of extensive buildings to hold the splendid collections so rapidly forming and of an endowment to maintain them ; the laying out of the grounds and the establishment of a botanic garden. It is fortunate indeed

*In order that a complete statement of the various steps by which this result has been accomplished may be available for reference I have brought together in Appendix III., copies of all legislative enactments bearing upon the Blockley property, portions of which now constitute the University domain.

that your liberal policy has attached firmly to the University various organizations, of which the Department of Archaeology and Palæontology is an admirable illustration, who will serve her interests as zealously and loyally as though merely a committee of your own Board. This department consists of a board of managers, thirty-six in number, of whom six are appointed by the Trustees of the University, while the remainder are chosen by the University Archaeological Association which works in harmonious co-operation. These bodies have accepted unanimously the important offer made to them by your Board, and are preparing to enter on the accomplishment of the task in a spirit which ensures its fulfillment.

It is essential to the larger growth of the University, and to its influence as the intellectual centre of this great State that this work shall be conducted on a broad scale. The pursuit of advanced study in many lines leads directly to the demand for museum facilities. These are as necessary to a University as its great Library: and indeed a museum scientifically arranged is a library wherein one must search for the earliest records. The Babylonian Exploration of the University, for instance, has conducted operations during several years at the site of ancient Nippur on the Lower Euphrates. They have been fortunate to recover a large number of inscribed tablets, bricks, stones, etc., which constitute a highly important addition to the scant sources of historic knowledge of the remote period, as far back even as 3800 B. C. to which they relate. The fact that records have been discovered of no less than six ancient monarchs whose existence was hitherto unknown, will illustrate the service to biblical study and to historic research which such collections may render. The official report of the Judges of the Columbian World's Fair at Chicago emphatically state, in regard to the exhibit made there of the results so far obtained by this exploration and accompanied by the first volume of the published texts by Professor H. V. Hilprecht, that it would be difficult to overestimate the value of this contribution to science. This opinion has been amply confirmed by the judgment of the highest authorities of Europe. Of course, such operations as these are costly, but the funds are derived from sources not available for current college purposes, and surely all will recognize that original work on this high plane of scholarship and scientific investigation is one of the chief glories of a great University.

Scarce less important have been the collections formed in other fields of Archæology, as in the Egyptian, the Mediterranean, and the American Sections: while particular mention must be made of the wholly unrivaled collection of engraved gems and every form of the glyptic art displayed by Maxwell Sommerville. It seems only a fitting recognition of the important position reached within the past few years by the subjects of Archæology and Ethnology and of the fame which has been won in these fields for the University, that your Board has elected Maxwell Sommerville, Professor of Glyptology, and has ordered that at the Commencement in June of this year the Honorary Degree of Doctor of Science shall be conferred upon Frederick Ward Putnam, the most eminent among American archæologists, upon Hamdi Bey, the Director of the Imperial Museum at Constantinople, and an archæologist of high distinction, and upon Sara Yorke Stevenson, the distinguished scholar to whose labors the remarkable development of the University Museum is in large measure due.

The report of the President of the Department of Archæology and Palæontology will be found in Appendix No. IV, and presents a detailed account of the interesting operations of this department during the past year.

The University took a creditable part in the Columbian Exposition, and I take pleasure in calling attention to the report (Appendix No. V) of Mr. E. W. Mumford, Assistant Secretary, who had charge of the organization and care of our exhibit. The cost, which was defrayed by private subscription, was more than returned by the very large and valuable accessions to our Library and Museums procured through the influence of our representatives from the Commissioners of Foreign Governments and individual exhibitors. Thanks are due to Professor W. P. Wilson, to Mrs. Cornelius Stevenson, to Mr. Stewart Culin and to Mr. E. W. Mumford, for their earnest and successful labors in this direction.

A highly successful representation was also made by the University at the Spanish-American Exhibition held at Madrid in 1893; the highest awards were received, and the Director of our Museum obtained many valuable gifts for our collections.

I feel that this entire subject may be safely entrusted to the intelligent interest of the community, which will surely aid effectively in a work so replete with attraction, so conducive to

the adornment of the city, and so necessary to the higher life of the University.

I have the satisfaction of reporting the continued success of the American Society for the Extension of University Teaching, which, though not an organic part of the University, must be regarded as an affiliated organization. The original plan of operations has gradually been modified and extended as results indicated, but upon the whole the changes introduced have been slight. The work of the Society has greatly enlarged, though I must limit myself here to an allusion to the prominence acquired by the courses on Civics, to the success of the Summer School, and to the tendency constantly shown to recognize more and more the necessity of a considerable number of lecturers whose entire time shall be devoted to the work of the Society. One of the strong inducements which led me to organize this movement in America was the hope that by its means we might gain more ready and effective access to the masses in order to impart sound instruction in all that pertains to the duties and privileges of American citizenship. This special part of the work has recently been taken up actively by Mr. Charles A. Brinley, and the results promise to meet the highest expectations. The success of the Summer School which was conducted at the University last year by the American Society demonstrates the advantages of Philadelphia as a centre for such work, and the plans which have been proposed for the coming summer promise even larger results. The Society is still without permanent endowment, and has received no appropriation from either State or city. Of course, it receives no direct pecuniary aid from the University. By skillful management its finances are kept in a sound position, but the claims of this important work upon all who desire the greater intelligence of the masses seem so valid that there is good reason to hope that ere long it will be placed upon a sure and permanent basis by adequate endowment.

When the wide-spreading influence of these and other allied organizations is estimated in addition to the effect of the great educational work accomplished by the University itself, and when it is understood that at almost every point these activities are brought into relation with the municipality by definite and abiding obligations, it is not strange that of late years the truth is coming to be recognized that the University, so far from being a private and exclusive corporation, is really and organically a part of the

municipality. As I stated in my letter of resignation on April 23, progress has also been made toward the establishment of the essential principle that the University is in right, and should be in fact, the head of the educational system of the entire Commonwealth. We may fairly claim to have done much toward securing a recognition of the view that the encouragement of higher education by the municipality and the legislature is as proper and important in the older communities of America as it has been decided to be in the newer States.

While the relations of the University with the community have been rendered closer and more vital, there has been effected a complete unification of the University itself. From a group of disconnected schools there has been gradually organized a great academic body. This is evidenced by recent changes in the organization of your own Board, by which the system of standing committees is simplified and adapted to the new and closer relations between the numerous departments of the University. A roster of the newly adopted system will be found in Appendix No. VI. It is shown more conspicuously by the radical changes which will occur this year in Commencement Exercises. For the first time in the history of the University it is possible to have a true University week, the terms of all the departments now coinciding and thus allowing a full program of events of high academic importance. The necessity for able management on such an occasion was manifest, and a committee was early appointed, consisting of Professor George Wharton Pepper, Chairman and Chief Marshal; Professor John Marshall and Messrs. George Q. Horwitz, Henry B. Robb, Edward G. McCollin and E. W. Mumford. The historic importance of this occasion, and the actual interest of the events promised, lead me to publish in the form of an Appendix, No. VII, the program arranged by this efficient committee. It is to be hoped that the precedent thus auspiciously established will be followed perennially with ever-growing brilliancy. University week, thus celebrated with all academic and civic honors, will rank as the most imposing function of the year.

Sections 29 and 30 of the Statutes have not only been amended to permit of this change in the times of public commencements, but also by the addition of a paragraph permitting degrees to be conferred in academic council, at other than the stated times of commencement. (See Appendix No. VIII.) One

important reason for this change was the fact that as students in the Department of Philosophy may enter at any time in the year, and may at any time complete their courses and fulfill the conditions for their degree, it would often be a hardship to require them to wait for several months for the degree which they might need at once in support of applications for positions. Again, the Statutes require the age of twenty-one years at least for graduation in some of the professional schools, and in some cases bright men have been compelled to wait for nearly a year after the completion of their courses before receiving their diplomas. The new statute provides for such cases, is in full accord with the usages of foreign universities, and has every safeguard against abuse in the conferring of degrees.

Another feature of University life has attracted so much attention, and has come to hold such important relations to academic work that its regulation has properly occupied the serious consideration of your Board. I refer to Athletic Sports, in the various branches of which our students have for several years shown such interest and skill as to rapidly carry the University colors to the front. It is obvious that there are grave risks connected with these sports: risks of bodily injury to the participants, especially in the more violent games, such as football; risks of interference with important studies, owing to the excessive claims of the practice and training required or to the unduly frequent absences incident to the numerous matches; risks of loss of tone and character from the spirit of professionalism or of unfairness which partisan zeal may admit, or from the bad surroundings encountered at some of the more exciting games. These risks must be recognized and admitted. Yet I am forced to state after careful and prolonged observation that the nett results of intercollegiate athletic sports seem to me to be enormously on the side of good, and of good scarcely attainable in other ways: while the evils incident seem capable of great amelioration by proper systems of restraint and supervision. The rules which should govern each sport can be fixed only by conferences of experienced and high-toned players. The extent to which students may be permitted to engage in such contests requires the judgment of the Director of Physical Education and of the several professors who are familiar with the individuals concerned. The exclusion of professionalism and unsportsman-like practices, and the restriction of the temptations incident to

certain contests demand the enactment and the rigid enforcement of adequate rules. The details of these questions are numerous and at times complicated: they cannot be discussed to advantage in a general way. If the authorities of each institution are in earnest in promoting the good and eliminating the evils of inter-collegiate athletic sports, I have such rooted confidence in the good tone of American students as a body as to make me assured that satisfactory results will be attained. The action taken by your Board in February, 1894, was to establish, and provide with adequate authority, a committee consisting of representatives of each Faculty and of the Athletic Association. The composition of the committee ensured the immediate acceptance of its authority and fairness. The set of rules adopted by them and promptly enforced throughout the University exerted an obviously happy effect, and has received wide-spread approval. They are given in full in Appendix No. IX. They seem likely to deal effectively with abuses and to ensure a strictly honest representation in all contests, a proper attention to the physical fitness of the contestants, and a sufficiently good record in scholarship to justify the expenditure of time involved. They certainly make it clear that this University will retain no student upon its rolls whose only title to such a place is his prowess on the athletic field.

In calling attention to the list of publications (Appendix No. X,) by members of the University, while in a few cases authors who have not hitherto reported have been allowed to report their publications during preceding years so as to complete the record, it is a source of extreme gratification to note the proof of such activity in almost every field of literary and scientific work. It is proper to make especial mention of the admirable work of Professor Francis Newton Thorpe as Editor of the Memorial Volume entitled, "Benjamin Franklin, and the University of Pennsylvania," which was published by the Government as Circular of Information, No. 2, of the Bureau of Education. In addition to his duties as Editor, Dr. Thorpe wrote the leading article, in which is given with a fulness never before approached, the history of Franklin's relations with education. This important study of Franklin as an educator is peculiarly interesting at the present moment as showing in the language of Dr. Thorpe, "that the recent unification and organization of the University is the concrete expression and the academic proof of the profound sagacity of Benjamin Franklin's plans for a University." The

wide distribution of this volume as a Government document cannot but be useful to the community and to the University. The courtesy of the distinguished Commissioner of Education, Dr. William T. Harris, and the labors of Dr. Thorpe in this connection deserve and have received grateful acknowledgment.

The growth of the University Library continues to be highly gratifying. There have been added during the year ending October 1, 1893, 7725 bound volumes, and 15,788 unbound volumes, as stated in the Report of the Librarian, Appendix No. XI. In 1881, the library contained only 20,000 bound volumes, and about 2000 unbound volumes and pamphlets; at present it contains about 120,000 bound volumes, and about as many unbound volumes and pamphlets. Even more gratifying is the rapid increase in the use made of the library by members of all departments of the University.

During the past year an adjustment of the financial relations of the Medical Department with the University was effected which is analogous to those previously agreed upon with the other departments. The general principle which has been adopted is that in the case of new departments which are still weak and lack endowment or adequate receipts from fees, assistance shall be extended as may be practicable from the University chest; while on the other hand, when any department has become strong, fully equipped, and in the habitual receipt of large revenues from fees and from endowment it is equitable that it in turn shall contribute somewhat to the general expenses of the University. The system which has been adopted in the professional schools is that all fees and all income from endowment in each department shall be considered the gross income of that department. From this is paid, first, all current expenses, and all salaries of subordinate instructors: next are paid certain minimum salaries to the members of the Faculty: whatever amount may be left over after these disbursements is regarded as surplus and is applied to the increase, pro rata, of the latter salaries up to a certain stipulated upper limit: and finally whatever amount may be left over after these payments is to be divided into three equal parts, one of which shall go to the general University account, another shall be held as a betterment fund for that particular department, and the last part shall be divided equally between all members of its Faculty. The services rendered by the University to each department are considerable and expensive. Such a system as the above provides

a chance for adding to the heavily burdened general income ; while it still leaves in operation the wholesome principle that each worker shall have an equitable interest in all the results of his labor. It is working well ; each department is accumulating a betterment fund ; the salaries are increasing : and yet the general funds of the University are receiving regularly a comfortable accession. The Veterinary Department is still too young to stand alone. Considerable amounts have been advanced by the University which are being refunded, principal and interest, from the receipts of the school ; the appropriations by the State Legislature to the Veterinary Hospital have been most opportune ; but much of the credit of maintaining this school on the high plane originally adopted under the influence of its first dean, Professor R. S. Huidekoper, is due to the family of the late J. B. Lippincott, Esq., who have contributed annually a large amount to aid in realizing the known wishes of one whose name will always be associated with the foundation of this department.

The College Department, including under this title all the undergraduate courses, has been unprecedentedly prosperous during the past five years. The Dean's Report, published as Appendix No. XII, will call attention to the rapid increase in the number of students, attended with a corresponding gain in the receipts from fees.

It must be remembered that it is only twenty-five years ago since your Board adopted the bold policy of transferring the University from its old site down town to West Philadelphia. The earlier years following this removal were attended with serious financial results ; and in spite of the superior educational facilities afforded, there was such apathy on the part of the community that by 1881 a debt of \$450,000 had been incurred, chiefly by the accumulation of successive annual deficits. The extinction of this debt was a difficult matter. A considerable amount of money was raised by private subscription ; the balance was canceled by means of the unrestricted University funds. In spite of the inconvenience resulting from this, your Board has pursued a policy of vigorous and rapid development. The result has demonstrated your wisdom, for the outcome has been in all respects satisfactory. It is a source of profound gratification that at the close of my administration, I can call attention to the official figures which, by request of the Committee on Finance and Property, the Treasurer has placed in my hands in advance

of the publication of his Annual Report. The total value of the University property in 1881 was \$1,600,000; it is now \$5,317,335. Upon this property there are obligations of \$338,939; which are amply represented by a tract of land purchased by the University for \$150,000, and by the Central Heat and Light Station, the outlay on which has been \$211,753. The ten acres of ground, which the University purchased for \$150,000, could, we are told by competent judges, be sold to-day for over \$250,000. Of the Central Heat and Light Station it is truly said by the Treasurer that it provides a source of large revenue through the greatly increased numbers of students in the School of Mechanical Engineering, accommodated in this building. It also promotes the comfort and well-being of the whole University by rendering to its departments a better service of heat, light and ventilation, than could otherwise be obtained. Each department is charged upon an equitable basis for its share of the above advantages, so that while a first-class service is secured in place of the former inferior one, it is expected that actual saving will be effected by the economies possible through a single central plant, instead of a series of heating and lighting plants in each separate building on the University domain.

It is probably true that all educational institutions show, at the close of each fiscal year, a deficit, on comparing the total outlay with the receipts from investments plus the students' fees. If, however, the policy of the administration be sound and each movement of expansion has been judiciously made, it should be possible to more than cover this deficit by the generous contributions received during each year. This state of things is a perpetually recurring demonstration of the essentially charitable nature of all higher education.

While during the past thirteen years the students of the University have increased from 981 to 2180; and the fees from \$92,701, the amount received in 1881, to \$230,567, actually received during the current year; there has been no single year of this series when the total operations of the University did not show a deficit. I am happy to say that we have succeeded in meeting these deficits with funds secured specially for the purpose. Indeed, the Treasurer states for the past three years the current receipts have exceeded the current expenditures by over \$27,000: though this surplus of current receipts has been more than absorbed by outlays for additional land and new buildings.

Undoubtedly the financial administration of the University will require in the future, as in the past, solicitous care and energetic exertions. Even if millions were added at once to the general fund the income would be taxed to meet the demands which make themselves felt to-day. We have called into existence a great University: it is intensely alive in all its parts; its growth in resources must be rapid if it is to keep its place with the other great universities of the world. The confidence and approval of the community may possibly be measured as well by the fact that during this year the acquisition in lands, buildings and money contributed will not be less than \$1,000,000 as by any other item in the growth of the University. Happily, therefore, we may trust that in the future there will be an ever-broadening stream of public and private munificence directed to an institution which has so faithfully and fruitfully employed all that has hitherto been entrusted to it.

Turning from these questions affecting the general University, I beg to submit the following reports of the various departments. It will be found that the important developments already stated in regard to what may be considered as the external and broader activities of the University, have been fully equaled by the growth and advances of the departments.

The College has enjoyed unprecedented prosperity. Including the graduate students in attendance, who are enrolled under the Faculty of Philosophy, the total attendance during 1893-94 has risen to 843 (689 in undergraduate classes, 154 in post-graduate courses). For the first time in the history of the University, the numbers in the College have exceeded those in the Medical Department, where 796 were enrolled in 1893-94. There seems small reason to doubt that, owing to the advantages now enjoyed by the University and to the admirable character of the work in all branches, there will be rapidly developed here one of the largest academic communities in the world. It is impossible for me to pass to a discussion of the report of the Dean, Dr. Horace Jayne, which is printed as Appendix No. XII, without speaking of the loss which the College is about to incur in his retirement from the office he has filled for six years, with so much advantage to the institution. Dr. Jayne graduated at the University as A. B. in 1879, and as M. D. in 1882. He early displayed decided scientific ability, especially in the field of natural history, and coupled with this was a disinterested zeal for the advancement of

scientific education which marked him out for a distinguished career. The University owes in large measure to him the Biological Department which has won such eminence ; and since January, 1889, when his administrative abilities led to his choice as Dean of the College Department, he has worked with like success in the latter. His example is an encouragement to young men of wealth, as showing the happiness and merited distinction readily attainable by a devotion to the higher interests of society. His services as Dean entitle him to the grateful appreciation of the University. He leaves that office at a time when the equipment, the organization, and the prosperity of the College are at a very high level. Not only is the total number of students in the College greater than ever before, but the admissions during the year reached the number of 298, a figure far in advance of any previous record. It is gratifying to observe that a considerable proportion (101) of these were admitted to advanced standing ; the number on the Freshman rolls being 197. Even more satisfactory is it to note the steady growth in the proportion of students coming to the College from places other than Philadelphia and its suburbs. In 1890 these constituted twenty-one per cent of the body of the College students ; in 1891 twenty-three per cent ; in 1892 twenty-seven per cent ; in 1893 thirty per cent ; and in 1894 thirty-three per cent. In the early days of the University, before the Revolutionary War, and before miserable factional strife in Pennsylvania struck down our prosperity, the College had won more than national fame, and was already drawing to Philadelphia a large proportion of her students from distant places. We have now regained that point, and it needs only the prompt erection of dormitories to cause our splendid equipment and the admirable grade of our educational work to draw to the College, just as to the Medical Department, large numbers of the best students of the entire continent. If the ratio of increase observed during the past decade is maintained the close of this century will witness almost 1500 students in the College and Philosophic Faculties alone.

No more striking instance may be cited of the immediate effect of the thorough equipment of a course of study with able teachers and adequate facilities than is presented by the rapid growth of the classes in attendance on the technical courses in the College. When the obvious advantages to our community resulting from such increase in the number of students drawn here are

fully appreciated, as they are now coming to be, there will surely be no hesitation in supplying every course of study in the college with the completest equipment. The treasurer's report shows that in 1893 the value of the securities of the John Henry Towne estate, held by the University, reached the large sum of \$454,301.11, yielding in that year an income of \$12,254.27. The progressive realization from considerable bodies of land now unproductive will eventually add largely to the revenues derived from this endowment. It is with constant gratification that reference is made to the strengthening position of the Towne Scientific School. The high value of the scientific degree (B. S.) conferred by the University is widely recognized. I would call especial attention to the arrangement by which not only a series of four-year technical courses, but also a five-year scientific course are maintained. While it is true that the chief part of the increase in the number of our students of science has been in the four-year courses (221 out of 331), it is proper to emphasize our belief in the superior value of the five-year course which affords during the first two years, occupied principally with general studies, a broad basis for the several branches of technical work to which the concluding three years of this highly effective course are devoted.

The widespread desire among American students to secure entrance to the practical pursuits of life at a comparatively early age seems quickened by increasing competition, though to some extent checked by an appreciation of the continually advancing thoroughness of preparation needed for successful work. The rapidly growing proportion of candidates for the B. S. is as clear an evidence of this, as is the difficulty of maintaining the percentage of college graduates in the prolonged courses of professional study. We have frankly recognized the reality and the reasonableness of this desire, and have applied ourselves to meet it in the College by rendering each of the four-year technical courses so strong and thorough that the B. S. won by their successful completion is a guarantee of solid educational work. None the less would the University urge on all who intend to take a scientific course and can afford to devote five years to a college education to elect the admirable course described at page 169 of the University Catalogue under the title of The Course in Science and Technology. Argument is no longer needed to convince that college life, where the influences are humanizing and elevating, is

the best preparation for all the higher pursuits of life. Equally clear is the superiority of the man, however technical and special may be his field of work, and indeed the more so in proportion as his work is such, who has enjoyed the advantage of a broader foundation of general studies. Surely it cannot be held by any that for the attainment of these advantages, and the acquisition of a degree attesting such scientific and technical preparation as qualifies for immediate responsible and lucrative employment, the period of five years, from seventeen or eighteen onward, is excessive. Our leading institutions plead for this greater breadth and thoroughness of preparation. There is no advantage to the University in maintaining this five-year course: the advantage is all for the community. The same question arises in connection with the preparation of students for the courses in medicine and law. It has been found necessary to increase the length of the former to four years, and that of the latter to three years. It is impossible to demand a college degree (either B. A. or B. S.) for admission, unless we wish to exclude a large proportion of our best students. Yet all appreciate the importance of college training as a preparation for professional study. We are forcing, in many instances, the earnest student to decide between a college course of four years followed by a short and poor professional course in a school of low grade, and the relinquishment of the advantages of college so as to enter at once upon a longer and more complete course of professional study. The University of Pennsylvania has tried to meet this great difficulty, in the case of medical education, by providing a skillfully adjusted course of study in biology and associated subjects covering two years, and by decreeing that any student who, either with us or at any accredited institution, may at the close of Sophomore year elect such course and pursue it successfully, shall at the close of Senior year receive the Bachelor's Degree and be eligible for admission to the second year of the four-year medical curriculum. In this way the combined degrees (B. A. or B. S. and M. D.) are acquired in seven years; and the fortunate student has enjoyed a graded course of education which is not at present surpassed as a preparation for the medical profession. The advantages of this arrangement are so great that it is not surprising that already at a considerable number of colleges, provision has been made for the required instruction during the last two years so as to enable their graduates to secure admission to the second year of our medical course.

There is reason to hope that a similar arrangement may be effected between the Law School and the course in the Wharton School or similar courses elsewhere by which the fullest extension of the legal curriculum may be tolerated without unduly prolonging the term of study for acquiring the combined collegiate and legal degrees.

The Central Heat and Light Station was in active operation at the date of my last report, but the public inauguration of the Laboratory of Mechanical Engineering, of which it is a part, did not take place until May 26, 1893, when addresses suitable to the occasion were delivered by Mr. J. Vaughan Merrick, as chairman of the committee charged with its planning and construction; by its architect, Mr. Joseph M. Wilson, and by its director, Professor Henry Spangler. The second winter of the use of the heating and ventilating plant witnessed decided improvements in efficiency of service and in economy, and the system may now be pronounced thoroughly effective for the purposes designed, and an evidence of the professional skill of those who had charge of its construction. The admirable accommodations provided for the Mechanical Engineering School have aided greatly in its development, but the penalty of its success is already apparent, and it is evident that the space which seemed more than ample for its expected growth, will soon have to be enlarged and extended.

The Laboratory of Chemistry is now completed, and will be another example of the latest ideas and most approved material in the construction of a building, for the special and exacting requirements of its special purpose. The cost of the building has considerably exceeded the estimated amount, partly on account of unexpected difficulties in preparing the foundations on the site assigned, but nothing has been spared to make it, without extravagant architectural ornament, dignified in its exterior, and perfect in its interior appointments. A large portion of the cost of construction was assumed by Messrs. Charles C. Harrison, Alfred C. Harrison and William W. Harrison, who, in filial regard for their father, the late George Lieb Harrison, LL. D., desired that it might perpetuate the name of his father, John Harrison, the founder of chemical manufactures in this country. It is needless to say that your Board gratefully accepted the gift and consented to the request; and henceforth the building will be known as the John Harrison Laboratory of Chemistry. Its completion will accomplish two most desirable results. The work of the chemical department

will be immensely facilitated by the extensive space and improved appliances at its disposal, and the College building will not only be relieved of the disagreeable results of chemical work in a building not properly adapted to it, but will gain largely in suites of rooms that are greatly needed by other growing departments. The Laboratory consists of a central building three stories high, with two wings each of two stories. It has a front of 168 feet on Thirty-fourth street, and the wings are 105 feet in depth. The main lecture room forms the rear of the central structure, and will accommodate over two hundred persons on seats arranged in ascending tiers, and is lighted chiefly from sky-lights which are very skillfully constructed. The front of this part of the building contains the Director's office and private laboratory, students' closet room, supply room, and iron and steel laboratory. On the first floor of the wing facing Spruce street is the laboratory for beginners, containing 212 double desks, and fitted out with flues and hoods of the latest approved pattern. Adjoining it are the instructor's room, balance room, and hydrogen-sulphide room. On the second floor of this wing are the museum, a lecture room, and a qualitative laboratory, with suitable smaller apartments. The second floor of the north wing contains another lecture room, the library and reading room.

The reorganization of the college curriculum with the redistribution of the courses of studies into elective groups has already confirmed the expectation formed of its happy influences. The subject is so fully treated in Dean Jayne's report that I beg to refer thither all who are interested in this important department.

While the great success of the technical courses merits special mention, it is gratifying to point to the continued growth of the Wharton School, both in the scope of its teaching and in the number of its students. Of particular interest are the courses in Journalism in which pioneer work has been done here with convincing evidence of the value of the undertaking, and the courses of lectures by eminent specialists upon important topics of the day. The establishment of a four-year course in Finance and Economy, embracing in the two lower years some of the subjects hitherto taught in the later years in this School, not only affords opportunity for more thorough advanced work before graduation, but will bring these courses into desirable relations of continuity with the courses of instruction in the leading high schools of this and other States.

The growth of post-graduate work in our leading universities during recent years is a noteworthy and encouraging fact. It indicates the rapidly increasing demand for thorough special preparation on the part of the men and women who are entering all the higher walks of life, and at the same time the growing love for genuine scholarship in this country. It is encouraged by the strenuous efforts on the part of the universities to afford facilities in library, laboratory and museum, for advanced study and original research ; and by the admirable zeal with which the labor of conducting this higher education is assumed by the leading members of their faculties. One of the most urgent educational needs of to-day is for the endowment of professorships in Faculties of Philosophy, or in the field of post-graduate work ; and of fellowships which shall enable the incumbents to take advantage of the facilities now offered at our great centres of learning. It may not be out of place here to call attention to the singular anomaly that the National Government has as yet taken no action to render accessible to advanced students the splendid opportunities which exist at Washington. In spite of the earnest advice and liberal bequests of Washington and the subsequent forcible recommendations of many eminent men, the foundation of a National University—the University of the United States—at Washington, remains an unrealized proposal. It appears urgently desirable on many grounds that this great need should be met promptly and effectively by Congress. It would seem obvious that it is a true University of the highest type and limited to post-graduate work, which is needed : and it may be confidently expected that a liberal provision for such advanced instruction at the National Capital will be followed by an even more rapid growth of the post-graduate departments of every well-equipped University in the country. Although our own Philosophic Faculty was established so recently as 1884, the report of the Dean (see Appendix No. XIII,) shows that during the past year there have been no fewer than 154 students enrolled, whose diplomas represent thirty-seven different institutions. There has been a steady increase in the number of courses of study offered ; in the number of students in attendance, in the zeal of both professors and students and in the grade of the work done. Attention has already been called to the change in University statutes regulating the conferring of degrees which will still further increase the attractiveness and availability of this

important department. I have on previous occasions dwelt fully on the fact that all the courses offered in the Faculty of Philosophy and the degree (Ph. D.) which may be won by their successful pursuit, are open to women on the same conditions as to men. It seems that this provision may prove an important step toward the solution of the difficulties of coeducation in institutions where from one reason or another there is objection to opening the regular college courses to both sexes alike.

The report of the Dean of the Medical Department (see Appendix No. XIV) will command the attention of all interested in the advancement of professional education. It is only natural that the policy pursued by this department, the oldest and most distinguished Medical School in America, should be watched closely; and that the results of this policy should exert an influence upon our sister schools. The enforcement of a compulsory three-year graded course by the University in 1877, and the brilliant success which attended it, marked an epoch in the history of medical education in America. It now seems difficult to conceive the prolonged and heated controversy which had preceded the adoption of that measure. The decision to extend the course of medical study to four years and the length of the sessions to eight months was reached in 1891, but not without great misgivings as to its effect on the hardly-won prosperity of the Medical School. The conditions imposed by the Board of Trustees, that a guarantee fund of \$20,000 annually for five years, and a definite contribution of \$50,000 toward the permanent betterment of the Medical Department, were met by the liberality of friends of the University—in chief part members of the medical faculty. The report of the Dean exhibits briefly but effectively the emphatic endorsement given by the profession and the community to the stand taken by the University.

The number of students who entered for the session of 1892-93, the last date at which matriculation for the three-year course was allowed, reached the large total of 311. This was reasonably attributed in part to the pressing forward of numbers who desired to anticipate the greater exaction of the new and prolonged course.

The class of 1891-92 had numbered 260, so that when the first class entering under the new four-year rule in 1893-94 reached the gratifying figure of 188 it was recognized at once that

the battle for Higher Medical Education was won.* The total number in attendance in 1893-94 was 796, against the entirely unprecedented number of 847 in 1892-93, of which the Dean truly remarks that probably at no period in the history of any medical school in the United States has this number of students in attendance during a scholastic year been exceeded. Especially gratifying as proving the high quality of the students composing these large classes are the figures furnished by him to show the percentage of students holding some academic degree. While there is an obvious necessity for still further elevation of the standard for admission, it may be considered as definitely proved that the schools with best equipment and facilities and which permit the most thorough and practical instruction will draw the largest number of the best students in spite of more onerous exactions.†

Further convincing proof of the high value set upon the diploma of the University, is furnished by the remarkable fact that in spite of the considerable number of students who are turned back at the close of each year (about twenty per cent of each class) from failure to pass the examinations required for promotion, the size of the upper classes progressively increases owing to the large number of advanced students or graduates admitted from other schools. Reference may again be made here to the important provision allowing graduates in arts or science who have pursued certain biological studies to enter the second-year class of the Medical School under the conditions fully stated in the Catalogue and in the Dean's report. The practical value of this arrangement is shown by the fact that many of the classical and scientific colleges throughout the country have already arranged courses to meet the requirements for entrance to our second-year medical class, while others are preparing to give courses in the branches named.

It is impossible in this place to dwell upon the numerous and weighty advantages afforded by the four-year course. It allows

* The addresses introductory to the course of 1877-78 and to that of 1893-94, both of which I had the honor of delivering by invitation of the Medical Faculty, have been published by the Lippincott Co., under the title of "Higher Medical Education, the True Interest of the Profession and of the Public."

† As this report goes through press, I am enabled to add that the class entering for the session of 1894-95 numbers 262, so that the total number in attendance is now 801. There is every reason to expect at least an equal number in succeeding years, so that by the time the four-year system is in full operation the number in attendance in the Medical School will approach or equal 1000.

the introduction of so much practical and clinical work that each graduate is actually well prepared to enter at once upon the practice of his profession. Only those who realize the disastrous ignorance of many who graduate under a system of short courses with scant clinical facilities will appreciate the full significance of this statement. There will be provided also a certain degree of election between special advanced courses in the fourth year, so that those who by that time can determine their lines of future work may acquire an advanced degree of knowledge in appropriate studies.

It may be doubted whether the length of the medical curriculum now attained by four annual sessions of eight or nine months each will need prolongation. Our efforts may be directed profitably to securing the needed advance in the requirements for education preparatory to entering upon that curriculum; and to the provision of more ample facilities for post-graduate work. The completion of the Wistar Institute of Anatomy and Biology, to which reference has been made earlier in this report, calls attention forcibly to what is required in other branches. Our object is to secure in each the facilities of a thoroughly equipped laboratory, occupying a special building, and adapted at once to the needs of undergraduate work, and to the advanced instruction and original investigation of post-graduate students. These facilities now exist in the Laboratory of Hygiene, in the Wistar Institute of Anatomy and Biology, and in clinical medicine they will be provided in connection with the University Hospital and the adjoining Laboratory which will be erected in the immediate future. This Laboratory of Clinical Medicine is founded as a memorial of the late William Pepper, who formerly held the chair of the Theory and Practice of Medicine, and who is justly regarded as among the great clinical teachers of America. The object of the foundation, as stated in a communication to your Board on February 24, 1894 (Appendix No. XV), is to promote the interests of the patients in the University Hospital by the prosecution of minute clinical studies and original researches, and to advance the interests of science by the publication of the results of such work. There will be needed an adequate endowment of this Laboratory; and with this it is hoped that excellent results will attend its operation. It is a source of added gratification that the sum placed at your disposal for this Laboratory will be instrumental in securing the payment of the appropriation made

by the Legislature in 1893, of \$60,000 for the construction of an additional wing to the University Hospital, and of \$20,000 for an extension of the Maternity Wards, subject to the condition that \$30,000 additional should be subscribed and paid in from other sources for construction purposes. The prevailing financial conditions were such as to cause grave fears that this much-needed appropriation might be lost through inability to comply with the condition attached. It is a source of thankfulness that through the generous contributions placed at your disposal for this purpose, the requirements of the act have been fully met. The construction of the Hospital wing, of the new Maternity Ward and of the Clinical Laboratory, will proceed at once under the able supervision of Dr. Billings, Director of the Hospital. In grateful acknowledgment of the liberal gift of Mrs. D. Hayes Agnew, and even more out of reverence for the lofty character, and long and devoted services of Dr. Agnew—equally pre-eminent as a teacher, a writer and a practitioner—it has been unanimously resolved that the important addition about to be made to the Hospital shall bear his name.

When it is realized that for the establishment of the University Hospital there has already been secured in the course of twenty-three years, ground, buildings and endowments aggregating \$1,350,000, the heavy drain upon the energies and resources of the friends of the University, incident to this essential undertaking, will be somewhat appreciated. The undertaking was, however, unavoidable. It would have been impossible to have carried through successfully the reform and elevation of medical education without the possession of a large general hospital under the exclusive control of the University. Each step taken in advance has been based upon more and more thorough practical instruction of each individual student in the Hospital Ward, and in the adjoining laboratories. The last great change, inaugurated with such brilliant success, will demand a large extension of clinical facilities. Fortunately the claims of sick and suffering humanity are here so obviously identical with those of higher medical education, that the appeal of the Hospital for increased endowments and larger current funds will surely meet with a generous response. The ever growing pressure upon the accommodations of the Hospital; the high efficiency of the service of the institution; the pre-eminent success of the recent graduates of the University, are the convincing proofs of the

wise use made of all that has been entrusted to you, for this purpose, and are the most eloquent appeal for further and more adequate benefactions. The expenditures of the University Hospital for the year ending August 31, 1893, reached the large figure of \$96,268, including unusually large outlays for repairs and construction. It must be expected that when the additions now to be built are completed and in full operation, the annual expenses will approximate \$120,000.

Mention is fittingly made in the Dean's report of the lectures which were given by request during the last session of the Medical School by Professor J. M. DaCosta and by Dr. Isaac Ott. It was recognized that these welcome features were not merely the expression of courteous friendship, but were rather a willing testimony to the high claims of a truly scientific and unselfish system of education upon the co-operation of those who desire to see the standard of the profession elevated.

The Auxiliary Faculty of Medicine has been re-organized both in its staff and its courses of instruction. The retirement of Professor Harrison Allen in order to assume the directorship of the Wistar Institute led to changes in the Faculty. Dr. Charles K. Mills was elected Professor of Medical Jurisprudence and Dean of the Faculty. Professor Edward D. Cope was transferred to the chair of Zoölogy and Comparative Anatomy from that of Mineralogy and Geology, and Dr. Amos P. Brown was elected to the latter chair. The degree of Doctor of Philosophy is no longer given to graduates of this department as such, but their work in it, for which a certificate is given, may count as part of the work in the Faculty of Philosophy, for which that degree is given. The report of the Dean will be found in Appendix No. XVI.

The Report of the Law Department as presented by the Dean, (Appendix No. XVII) exhibits a steady increase in prosperity. This is doubly gratifying in view of the elevation of the standard, and the prolongation of the curriculum so recently accomplished. The statement as to the Biddle Memorial Library is of peculiar interest. The arrangements as to the maintenance of this library have operated even more advantageously than was anticipated; so that the possession of a rapidly growing and efficiently administered library is assured to the department. The importance of this to a Law School can not be overestimated.

For some years past the Law School and Library have been accommodated in rented apartments in the Girard Building,

with the real or supposed advantage of contiguity to the court-rooms in the City Hall. The very great increase in the attendance upon the school under its improved system, has rendered these quarters inadequate, and the question of a new location has forced itself upon the Faculty and friends of the department. By the terms of gift of the Law Library it must be kept east of the Schuylkill River, and it is evident that the School and Library should not be separated.

It is a disputed question whether the offices of lawyers are likely to gravitate toward the vicinity of the courts or to that of the financial and business centres of the city. At the same time it is felt that as nearly as possible the Law School should be identified with the general life of the University, and its students given as much as is possible of the various advantages which cluster around the site in West Philadelphia. A happy solution of this problem was thought to have been reached in the proposed purchase of a large lot of ground on the south side of Walnut street at the eastern end of the Walnut street bridge, midway between the City Hall on the one side, and the University grounds on the other, and within easy walking distance from both. Sufficient progress was made in securing subscriptions to give assurance of the success of the undertaking; but a change in the views of the Faculty as to the advisability of the proposed site, led to its abandonment. The question of a suitable building for the Law School must, however, become an urgent one within a very short time.

The reports of the Dental School and of the Veterinary School as presented by the Deans of their respective departments, (Appendices No. XVIII and No. XIX) are full of encouragement as to the condition and prospects of these interesting departments.

The steady increase in the number of students in attendance on the Dental School and the more exacting requirements of the improved system of education enforced in it, are leading to an urgent demand for more spacious accommodations. Various temporary expedients have been suggested, but it is obvious that nothing but the erection of a building specially devoted to this school will satisfy its needs. The last decade has witnessed a remarkable advance in the science and art of dentistry toward the high position they should occupy as a most important branch of medicine. The commendable zeal shown by the dental profession

in elevating the standard of education requisite for admission to its ranks has contributed principally to this result. I have felt a peculiar interest in this movement; and the prominent position held by your Dental School at every step of the advance is a source of just gratification to all concerned. The same self-sacrificing efforts on the part of the Faculty, the same anxiety as to the practical results of each important step of reform, and the same gratifying proof of the wisdom of the progressive policy pursued, that have been dwelt upon in connection with the changes in the Medical School have been exhibited in equally marked degree in the recent history of the Dental School. In the presence of so much public-spirited devotion on the part of the dental faculty, and in consideration of the priceless services now rendered by the dental profession to the community—services which not only relieve pain, but promote or restore health and prolong life—it would be an invidious reflection to express doubt as to the willingness of the community to unite in a liberal effort to secure the greatly enlarged facilities and endowments needed to place the higher dental education upon a strong and sure basis.

Reference has already been made to the necessity of increased revenues for the Veterinary School and Hospital. The grade and character of work done in both the didactic and practical branches is such as to merit the highest commendation. The diploma is regarded everywhere as of the highest rank in this specialty. The facilities for instruction are unsurpassed. The very superiority of the curriculum, involving more prolonged and advanced study, as well as greater expenditures on the part of the students, tends to restrict the number of students in attendance, in view of the ease with which a diploma may be obtained in some other veterinary schools. The disinterested policy of your school has, however, won the admiration of all who are familiar with the subject.

It is with pleasure that I repeat the acknowledgments due to the sustained liberality of the family of the late J. B. Lippincott, Esq., which alone has rendered possible an adherence to this policy. It can scarcely be doubted that when the magnitude of the interests at stake is appreciated, all difficulties will be ended. The commercial values affected by the diseases of our live-stock are so enormous; the sanitary questions connected with the transmission of disease from

sick animals, or infected animal flesh, are so startling in their importance, and the consequent demand for increasing numbers of scientifically educated veterinarians is so obvious, that we may surely count upon progressive prosperity for this admirable school of the University.

WILLIAM PEPPER,
Provost.

APPENDICES.

APPENDIX No. I.

THE PROVOST'S LETTER OF RESIGNATION.

TO THE BOARD OF TRUSTEES:

With deep thankfulness I recognize that the University has reached a stage of development and prosperity which justifies me in laying down the high office you intrusted to me more than thirteen years ago, and which I have held as long as it was possible to combine the administrative labors of Provost with the demands of medical teaching and practice. This time has now passed, and I beg therefore to tender my resignation, to take effect after the coming Commencement.

The close of the current session will witness the completion of the formative period of the University. From a group of disconnected schools there has been gradually organized a great academic body, complete in its unity and instinct with varied yet harmonious activities. Mutual confidence and co-operation have developed a system strong enough for effective central control, yet so flexible as to admit affiliation with many separate organizations.

To our University is due the credit of establishing University Extension in America, yet the important and successful society which controls this movement has no organic relations with the University, save that the Provost is *ex-officio* the Honorary President. The Wistar Institute of Anatomy and Biology, a magnificent memorial of the founder of American anatomy, has a separate charter, and is not owned by the University, yet is governed by a board, the majority of whose members are appointed by yourselves. The University Hospital, which has grown so prosperously, is a special trust administered by a board of twenty-two members, only four of whom are appointed by the trustees of the University.

The Department of Archæology and Palæontology, under whose energetic operations there is developing rapidly a museum of high rank, is governed by a board of not less than thirty-six members, of whom only six are appointed by the trustees of the University. Reference is made to these familiar instances to illustrate the admirable results which may develop under a system which excludes rigid control, and rests upon mutual confidence and a common devotion to a great cause.

It has been the chief aim of your board to demonstrate to the people of this great Commonwealth that the University is truly the voluntary association of all persons and of all agencies who wish to unite in work for the elevation of society by the pursuit and diffusion of knowledge and truth. No less important has been the establishment of the principle that the University, so far from being a private and exclusive corporation, is essentially and organically a part of the municipality. The large future of the University was secured when, in 1872 and in 1883, City Councils voted, without a dissenting voice, the transfer to the University of splendid tracts of ground in consideration of the establishment in perpetuity of fifty free beds in the hospital for the poor of Philadelphia, and of fifty prize scholarships in the College, to be awarded to graduates of the public schools of Philadelphia. The subsequent accessions of territory which have brought the domain of the University up to fifty-two acres, in a compact body in the centre of the city, have been the logical consequences of these great steps ; and so faithfully have all the trusts and conditions been executed, that it has come to be recognized by the municipal authorities that it is more profitable to the city to give freely to the University anything in its power to bestow which is needed for the development of that institution than to dispose of it elsewhere even at a great price. It needs only the resolute continuance of this wise policy to secure for the University full recognition as a branch of the city government, with a duly accredited representative of its great constituency in her Councils.

Progress has also been made toward the establishment of the essential principle that the University is in right, and should be in fact, the head of the educational system of the entire Commonwealth. We may fairly claim to have done much toward securing a recognition of the view that the encouragement of higher education, by the municipality and the legislature, is as

proper and important in the older communities of America as it has been decided to be in the newer States.

While the unification of the University and the establishment of broad lines of policy may seem to be the most important work of the past thirteen years, it will be found that the resources of the University and the educational work in each department have been successfully promoted. In 1881 its property was fifteen acres, while at present there are owned or controlled by the University, in a continuous tract and solely for educational purposes, not less than fifty-two acres. The value of the lands, buildings, and endowment in 1881 may be estimated at \$1,600,000; it is now over \$5,000,000. Prior to the date of the late John Henry Towne's great bequest, the University had never received a single large gift or legacy. During the current year ending September 1, 1894, there will be acquired in lands, buildings, money, and subscriptions not less than \$1,000,000. The members of the teaching force in 1881 numbered 88, and the students in all departments, 981; at this time the former are 268 and the attendance has reached 2180, representing every State of the union and not less than thirty-eight foreign countries. The College Department has attained a national distinction, and its complete reorganization, which has now been accomplished successfully, gives sure promise of sound and rapid progress. The Medical School has been advanced to pre-eminence in equipment and prosperity, while plans now maturing will place it abreast of the great schools of Europe. The Law School has effected the prolongation and elevation of its curriculum, and has deservedly won national repute. Encouraging progress has been made toward providing an admirable building on an approved site, so that the future eminence of the school is assured. Gratifying reports may be made of the position of the Dental and Veterinary Department; and well-considered plans for their still further development need only time for their fulfillment. Upon this vigorous basis rests the Department of Philosophy, which although organized as late as 1884, and still without special endowment, has already 154 students. It represents the University in its highest and best intellectual life; it affords inspiration to teachers and students; it has enabled us to extend the richest privileges of the University to women on equal terms with men; it points the way to large endowment of research and advanced scholarship.

The necessity of dormitories to the development of the best University life has come to be clearly recognized by your Board, and generous friends stand ready to supply this important need.

It is pleasant, in these days of strength and prosperity, to reflect upon those of doubt and struggle, when ridicule met the assertion, the truth of which is now freely conceded, that nowhere can a great university be developed so favorably as in a great city.

In closing my term of service as Provost I may be permitted to allude to the motives which impel me to this step. The labor of these thirteen years has been so severe, in connection with my professional duties in the Medical School, and with the extensive medical practice necessary to provide the funds which have enabled me to initiate nearly all of the large movements undertaken during this time, that I have often felt that my life was specially preserved for the work. It has, however, been growing evident, for several years past, that the time was approaching when the immense extent of the University interests would demand the undivided activity of the most energetic man. It has now become necessary for me to choose between administrative work and medical science. My devotion to the latter has determined the choice.

No official has ever been associated with more affectionate and indulgent colleagues, or has enjoyed more loyal co-operation than has been extended to me. I am confident that the choice of my successor will be wisely and promptly made. I do not leave the service of the University, but will remain, with more free hands, ready to serve her every interest with utmost devotion.

I invoke upon your continued labors in the government of this grand institution the richest blessings of Almighty God, who has in the past so signally guarded it.

WILLIAM PEPPER,
Provost.

APPENDIX No. II.

DEATHS.

- Dec. 3, 1893. Joseph D. Potts, Esq., Trustee.
 Jan. 10, 1894. Oswald Seidensticker, Ph. D., Litt. D., Professor
 of the German Language and Literature.

RESIGNATIONS.

- Jan. 13, 1893. Rev. J. A. M. Chapman, D. D., as Chaplain.
 Feb. 7, 1893. Rev. John P. Peters, Ph. D., as Professor of
 Hebrew.
 " " Miss Ida Wood, Ph. D., as Secretary to the
 Graduate Department for Women.
 April 4, 1893. William L. Zuill, V. M. D., as Professor of
 Veterinary Surgery and Obstetrics.
 May 1, 1893. Robert Meade Smith, M. D., as Professor of
 Comparative Physiology.
 May 19, 1893. William Goodell, M. D., as Professor of Gynæ-
 cology.
 April 23, 1894. William Pepper, M. D., LL. D., as Provost of
 the University and President *pro tempore* of
 the Board of Trustees.
 May 9, 1894. Horace Jayne, M. D., Ph. D., as Dean of the
 College Faculty and of the Faculty of Phil-
 osophy.

APPOINTMENTS.

GENERAL.

- May 1, 1893. Charlemagne Tower, Jr., to be Trustee.
 April 23, 1894. William West Frazier, to be Trustee.

UNLIMITED, OR FOR A PERIOD OF THREE YEARS OR MORE.

COLLEGE DEPARTMENT.

- Feb. 7, 1893. Joseph French Johnson, A. B., to be Associate
 Professor of Business Practice.
 May 19, 1893. Felix E. Schelling, A. M., to be JOHN WELSH
 CENTENNIAL Professor of History and Eng-
 lish Literature.

- May 19, 1893. Edgar Marburg, C. E., to be Professor of Civil Engineering.
 April 23, 1894. Maxwell Sommerville, to be Professor of Glyptology.

MEDICAL DEPARTMENT.

- May 1, 1893. Charles K. Mills, M. D., to be Professor of Mental Diseases and Medical Jurisprudence.
 June 6, 1893. William Goodell, M. D., to be Honorary Professor of Gynæcology.
 " " Charles B. Penrose, M. D., Ph. D., to be Professor of Gynæcology.

LAW DEPARTMENT.

- May 19, 1893. George Wharton Pepper, LL. B., to be A. SYDNEY BIDDLE Professor of Law.

VETERINARY DEPARTMENT.

- May 19, 1893. Leo Breisacher, M. D., V. M. D., to be Professor of Comparative Physiology.
 " " Leonard Pearson, B. S., V. M. D., to be Professor of the Theory and Practice of Veterinary Medicine.
 Nov. 7, 1893. John W. Adams, V. M. D., to be Professor of Veterinary Surgery and Obstetrics.

ANNUAL, OR FOR A PERIOD LESS THAN TWO YEARS.

GENERAL.

- Feb. 7, 1893. Rev. Charles Wood, D. D., to be Chaplain.
 Feb. 6, 1894.
 Feb. 7, 1893. Rev. Leverett Bradley, A. M., to be Chaplain.
 Feb. 6, 1894.
 Feb. 7, 1893. Rev. J. A. Lippincott, D. D., LL. D., to be Chaplain.
 Feb. 6, 1894.
 March 7, 1893. Rev. John T. Beckley, D. D., to be Chaplain.
 Feb. 6, 1894.

COLLEGE DEPARTMENT.

May	2, 1893.	George Hervey Hallett, A. B., to be TYNDALF Fellow.
June	6, 1893.	Alfred Gudeman, Ph.D., to be Assistant Professor of Classical Philology.
"	"	Walter L. Webb, C. E., to be Assistant Professor of Civil Engineering.
May	19, 1893.	Charles M. Burk, M. D., to be Instructor in Zoölogy.
"	"	Daniel B. Shumway, B. S., to be Instructor in English.
"	"	Amos Peaslee Brown, E. M., Ph. D., to be Instructor in Mining and Metallurgy.
"	"	J. Percy Moore, to be Instructor in Zoölogy.
"	"	John Harshberger, Ph.D., to be Assistant Instructor in Analytical Botany.
"	"	Wilson Eyre, Jr., to be Instructor in Pen and Ink Drawing.
"	"	J. J. Morris, to be Assistant Instructor in Mechanical Engineering.
"	"	Alexander C. Abbott, M. D., to be First Assistant in Hygiene.
"	"	Julian Millard, to be Instructor in Architecture.
"	"	Julius Ohly, Ph.D., to be Instructor in Chemistry.
"	"	Daniel L. Wallace, to be Assistant in Chemistry.
"	"	Homer Smith, A. B., to be Instructor in English.
"	"	Robert Bealle Burke, A. B., to be Instructor in Greek.
"	"	Josiah Harmar Penniman, A. B., to be Instructor in English.
"	"	Herbert E. Everett, to be Instructor in Drawing.
"	"	John Quincy Adams, Ph.D., to be Instructor in Political Science.
"	"	Charles Worthington, C. E., to be Instructor in Civil Engineering.
"	"	A. William Schramm, B. S., M. E., to be Instructor in Electrical Engineering.
"	"	Lucien E. Picolet, to be Instructor in Mechanical Engineering.
"	"	Edward Wesselhoeft, to be Instructor in German.

- May 19, 1893. J. Hartley Merrick, to be Assistant to the Dean.
 " " Philip P. Calvert, to be Assistant Instructor in Zoölogy.
 " " Albert T. Clay, to be Instructor in Hebrew.
 " " Henry Plasschaert, to be Instructor in Modeling.
 Feb. 7, 1893. Dana C. Munro, A. M., to be Instructor in History.
 May 19, 1893. Isaac J. Schwatt, Ph. D., to be Instructor in Mathematics.
 " " Theodore Lorenz, to be Instructor in French.
 " " Edward T. Child, B. S., M. E., to be Instructor in Mechanical Engineering.
 " " C. Anderson Willis, M. E., to be Instructor in Mechanical Engineering.
 " " C. W. Scribner, A. B., M. E., to be Instructor in Mechanical Engineering.
 " " H. W. McConnell, to be Assistant Instructor in Mechanical Engineering.
 May 19, 1893. Ingersoll Olmsted, M. B., to be Assistant in Bacteriology.
 " " Hermann Fleck, Ph. D., to be Instructor in Chemistry.
 " " Owen L. Shinn, to be Instructor in Chemistry.
 " " J. Bird Moyer, to be Instructor in Chemistry.
 " " Albert S. Bolles, Ph. D., to be University Lecturer on Banking Law and Practice.
 " " Maxwell Sommerville, to be University Lecturer on Glyptology.
 " " Theophilus P. Chandler, Jr., to be Lecturer in Architecture.
 " " Frank Miles Day, B. S., to be Lecturer in Architecture.
 " " John Stewardson, to be Lecturer in Architecture.
 " " Walter Cope, to be Lecturer in Architecture.
 " " Barr Ferree, to be Lecturer in Architecture.
 " " William Romaine Newbold, Ph. D., to be Lecturer on Philosophy.
 " " Lightner Witmer, Ph. D., to be Lecturer on Experimental Psychology.
 " " Charles S. Boyer, B. S., to be Lecturer on Technical Chemistry.

- May 19, 1893. Harry W. Jayne, Ph. D., to be Lecturer on Technical Chemistry.
- " " Louis J. Matos, M. E., to be Lecturer on Technical Chemistry.
- " " Abram H. Wintersteen, LL. B., to be Lecturer on Business Law and Practice.
- " " T. Harvey Dougherty, to be Assistant Instructor of Zoölogy.
- " " Amos J. Boyden, to be Lecturer in Architecture.
- Oct. 3, 1893. Horace Clark Richards, Ph. D., to be Instructor in Physics.
- " " William Draper Lewis, Ph. D., to be Lecturer in Institutional Law.
- " " Emory R. Johnson, Ph. D., to be Lecturer on Transportation.
- Feb. 6, 1894. Martin Grove Brumbaugh, Ph. D., to be Professor of Pedagogy.

DEPARTMENT OF MEDICINE.

- May 2, 1893. Roland G. Curtin, M. D., to be Lecturer on Physical Diagnosis.
- " " Adolph W. Miller, M. D., to be Lecturer on Materia Medica and Pharmacy, and Instructor in Practical Pharmacy.
- " " Henry R. Wharton, M. D., to be Demonstrator of Surgery.
- " " Richard H. Harte, M. D., to be Demonstrator of Osteology.
- " " Thomas R. Neilson, M. D., to be Assistant Demonstrator of Anatomy.
- " " Edmund W. Holmes, M. D., to be Demonstrator of Anatomy.
- " " Albert L. A. Toboldt, M. D., to be Assistant Instructor in Practical Pharmacy.
- " " Judson Daland, M. D., to be Instructor in Clinical Medicine, and Lecturer on Physical Diagnosis.
- " " J. P. Crozer Griffith, M. D., to be Instructor in Clinical Medicine.
- " " Samuel D. Risley, M. D., to be Lecturer on Ophthalmology.

May	2, 1893.	Carl Seiler, M. D., to be Lecturer on Laryngology.
"	"	Gwilym G. Davis, M. D., to be Assistant Demonstrator of Surgery.
"	"	Edward Martin, M. D., to be Instructor in Clinical Surgery and in Operative Surgery.
Feb.	7, 1893.	John K. Mitchell, M. D., to be Lecturer on General Symptomatology and Diagnosis.
May	2, 1893.	George H. Chambers, M. D., to be Assistant Demonstrator of Normal Histology.
"	"	James K. Young, M. D., to be Instructor in Orthopædic Surgery.
"	"	Henry W. Cattell, M. D., to be Demonstrator of Morbid Anatomy.
"	"	Robert Formad, V. M. D., to be Demonstrator of Normal Histology.
"	"	Arthur A. Stevens, M. D., to be Lecturer on Medical Terminology and Instructor in Physical Diagnosis.
"	"	Benjamin F. Stahl, M. D., to be Instructor in Physical Diagnosis.
"	"	Harry C. Deaver, M. D., to be Assistant Demonstrator of Anatomy.
"	"	John C. Heisler, M. D., to be Prosector to the Professor of Anatomy and Assistant Demonstrator of Obstetrics.
"	"	Frederick A. Packard, M. D., to be Instructor in Physical Diagnosis.
"	"	Richard C. Norris, M. D., to be Instructor in Obstetrics, and Lecturer on Clinical and Operative Obstetrics.
"	"	J. Aubrey Davis, M. D., to be Assistant Demonstrator of Obstetrics.
"	"	Milton B. Hartzell, M. D., to be Instructor in Dermatology.
"	"	Charles S. Potts, M. D., to be Instructor in Electro-Therapeutics, and in Nervous Diseases.
"	"	Leon Brinkmann, M. D., to be Assistant Demonstrator of Anatomy.

May	2, 1893.	John A. Boger, M. D., to be Assistant Demonstrator of Anatomy.
"	"	Walter I. Pennock, M. D., to be Assistant Demonstrator of Anatomy.
"	"	Herman B. Allyn, M. D., to be Instructor in Physical Diagnosis.
"	"	William Schleif, Ph. G., to be Assistant Demonstrator of Pharmacy.
"	"	James M. Brown, M. D., to be Instructor in Otology.
"	"	William S. Carter, M. D., to be Assistant Demonstrator of Pathological Histology.
"	"	W. Constantine Goodell, M. D., to be Instructor in Clinical Gynæcology.
"	"	Guy Hinsdale, M. D., to be Lecturer on Climatology.
"	"	M. Howard Fussell, M. D., to be Instructor in Clinical Medicine.
"	"	Samuel W. Morton, M. D., to be Instructor in Clinical Medicine.
"	"	Alfred C. Wood, M. D., to be Instructor in Clinical Surgery.
"	"	Ellwood R. Kirby, M. D., to be Assistant Instructor in Clinical Surgery.
"	"	Charles L. Leonard, M. D., to be Assistant Instructor in Clinical Surgery.
"	"	Joseph McFarland, M. D., to be Demonstrator of Pathological Histology.
"	"	George C. Stout, M. D., to be Assistant Demonstrator of Histology.
"	"	Robert S. J. Mitcheson, M. D., to be Assistant Demonstrator of Anatomy.
"	"	David B. Birney, M. D., to be Assistant Demonstrator of Surgery.
"	"	Joseph P. Tunis, M. D., to be Assistant Demonstrator of Surgery and of Anatomy.
Dec.	5, '1893.	
May	2, 1893.	John L. Wethered, M. D., to be Assistant Demonstrator of Pathological Histology.
"	"	William E. Hughes, M. D., to be Instructor in Physical Diagnosis.

- Nov.** 7, 1893. J. Alison Scott, M. D., to be Assistant Demonstrator of Morbid Anatomy.
- May** 2, 1893. Alfred Stengel, M. D., to be Instructor in Clinical Medicine.
- “ “ T. Mellor Tyson, M. D., to be Instructor in Clinical Medicine.
- Nov.** 7, 1893. Charles W. Dulles, M. D., to be Lecturer on the History of Medicine.
- Dec.** 5, 1893. Daniel W. Fetterolf, M. D., to be Assistant Demonstrator of Chemistry.
- “ “ Nathaniel A. Cashman, M. D., to be Instructor in Laryngology.
- “ “ Samuel M. Hamill, M. D., to be Instructor in Physical Diagnosis.
- “ “ Henry Toulmin, M. D., to be Instructor in Physical Diagnosis.
- Feb.** 6, 1894. David Reisman, M. D., to be Demonstrator of Pathological Histology.

AUXILIARY DEPARTMENT OF MEDICINE.

- Nov.** 7, 1893. Edward D. Cope, A. M., Ph. D., to be Professor of Zoölogy and Comparative Anatomy.
- “ “ William Powell Wilson, Sc. D., to be Professor of Botany.
- “ “ John S. Billings, M. D., LL.D., to be Professor of Hygiene.
- May** 2, 1893. Charles K. Mills, M. D., to be Professor of Medical Jurisprudence, and DEAN of the Faculty.
- Nov.** 7, 1893. Amos Peaslee Brown, E. M., Ph. D., to be Professor of Mineralogy and Geology.

DEPARTMENT OF DENTISTRY.

- May** 2, 1893. Robert Huey, D. D. S., to be Lecturer on Operative Dentistry.
- “ “ Edward C. Kirk, D. D. S., to be Lecturer on Operative Dentistry.
- “ “ John D. Thomas, D. D. S., to be Lecturer on Nitrous Oxide.

- May 2, 1893.** William Diehl, D. D. S., to be Demonstrator of Operative Dentistry.
- “ “ Harry B. McFadden, D. D. S., to be Demonstrator of Mechanical Dentistry.
- “ “ James E. Loder, D. D. S., to be Assistant Demonstrator of Operative Dentistry.
- “ “ Joseph W. White, D. D. S., to be Assistant Demonstrator of Operative Dentistry.
- “ “ Ambler Tees, Jr., D. D. S., to be Assistant Demonstrator of Mechanical Dentistry, and Demonstrator of Continuous Gum Work.
- “ “ R. Hamill D. Swing, D. D. S., to be Assistant Demonstrator of Operative Dentistry, and Demonstrator of Anæsthetics.
- “ “ Frederick W. Amend, Jr., D. D. S., to be Assistant Demonstrator of Mechanical Dentistry.
- “ “ Milton N. Keim, Jr., D. D. S., to be Assistant Demonstrator of Mechanical Dentistry.
- “ “ J. Edward Dunwoody, D. D. S., to be Assistant Demonstrator of Operative Dentistry.
- “ “ Charles A. E. Codman, D. D. S., to be Assistant Demonstrator of Operative Dentistry.
- “ “ Frederic A. Peeso, D. D. S., to be Demonstrator of Crown and Bridge Work.
- “ “ James G. Lane, D. D. S., to be Assistant Demonstrator of Crown and Bridge Work.
- “ “ C. Herbert Wilson, D. D. S., to be Assistant Demonstrator of Mechanical Dentistry.
- “ “ Louis E. Rauch, D. D. S., to be Assistant Demonstrator of Operative Dentistry.
- “ “ J. Thomas Lippincott, D. D. S., to be Assistant Demonstrator of Operative Dentistry.
- “ “ Edmund W. Holmes, M. D., to be Demonstrator of Anatomy.
- “ “ Robert Formad, V. M. D., to be Demonstrator of Normal Histology.
- Nov. 7, 1893.** Norman Sturges Essig, D. D. S., to be Lecturer on Mechanical Dentistry.
- “ “ Charles Newgarden, D. D. S., to be Assistant Demonstrator of Mechanical Dentistry.

- Nov. 7, 1893. Charles W. Neebe, D. D. S., to be Assistant Demonstrator of Crown and Bridge Work.
 " " Robert J. Seymour, D. D. S., to be Assistant Demonstrator of Mechanical Dentistry.

DEPARTMENT OF VETERINARY MEDICINE.

- May 2, 1893. Alexander Glass, V. S., to be Lecturer on the Theory and Practice of Canine Medicine.
 " " Robert Formad, V. M. D., to be Lecturer on Veterinary Sanitary Science, and Demonstrator of Normal and Pathological Histology and of Morbid Anatomy.
 " " William H. Ridge, V. M. D., to be Demonstrator of Veterinary Obstetrics.
 " " Edwin S. Muir, Ph. G., V. M. D., to be Instructor in Veterinary Materia Medica and Pharmacy.
 " " B. Frank Senseman, V. M. D., to be Demonstrator of Veterinary Anatomy.
 " " John Harshberger, Ph. D., to be Instructor in General Biology, Botany and Zoölogy.
 " " Charles E. Cotton, V. M. D., to be Assistant Demonstrator of Veterinary Anatomy.
 " " Franz Enge, to be Demonstrator of Forging and Horse-shoeing.

DEPARTMENT OF HYGIENE.

- May 2, 1893. A. C. Abbott, M. D., to be First Assistant in Hygiene.
 May 1, 1894. Mazyck P. Ravenel, M. D., to be THOMAS A. SCOTT Fellow in Hygiene.
 May 1, 1894. Ingersoll Olmsted, M. D., to be Assistant in Bacteriology.
 Oct. 3, 1893. Hill Sloane Warwick, M. D., to be Assistant in Chemistry.
 May 1, 1894.

APPENDIX No. III.

LEGISLATIVE ENACTMENTS BEARING UPON THE BLOCKLEY
PROPERTY, PORTIONS OF WHICH NOW CONSTITUTE THE
UNIVERSITY DOMAIN.

No. I.

A FURTHER SUPPLEMENT TO AN ACT INCORPORATING THE
CITY OF PHILADELPHIA.

SALE OF ALMSHOUSE GROUNDS AND BUILDINGS AUTHORIZED.

CONDITIONS.

SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same, That the city of Philadelphia is hereby empowered to make private or public sale, and convey in fee simple or reserving ground rents, the present almshouse grounds, or any part thereof, situate in the Twenty-fourth ward of said city, containing one hundred and eighty-seven acres, more or less, and the buildings thereon erected, subject to the following conditions :

I. That the city of Philadelphia shall reserve a part of said ground, not exceeding forty acres, to be laid out and maintained as an open public place forever, for the health and recreation of the people.

II. That the said city shall also reserve at Pine and South streets, on the river Schuylkill, pieces of ground sufficient, in the opinion of the chief engineer and surveyor of said city, for abutments and approaches thereto, for a bridge or bridges, which may be lawfully authorized to be erected at either of said streets.

CITY MAY PURCHASE LAND AND ERRECT ALMSHOUSE.

SEC. 2. That the city of Philadelphia is hereby empowered to purchase land and erect thereon an alms or poor house, (with or without a house of correction and employment, as may be deemed expedient) and in payment thereof to create a loan which shall be exempt from State tax.

PROCEEDS OF SALE, HOW APPLIED.

SEC. 3. That the proceeds arising from the sale of the grounds and buildings specified in the first section of this act, shall be specifically applied to and pledged for the payment of the loan authorized by the second section of this act; and if ground rents shall be reserved, or mortgages taken in payment, the same, when sold or paid off, shall be applied to and for the same purpose.

ELISHA W. DAVIS,
Speaker of the House of Representatives.

JOHN P. PENNEY,
Speaker of the Senate pro tem.

Approved the first day of May, Anno Domini one thousand eight hundred and sixty-two.

A. G. CURTIN.

NO. 2.

ORIGINAL PURCHASE BY THE UNIVERSITY IN 1869.

AN ORDINANCE

To authorize the sale of a lot of ground in the Twenty-seventh Ward.

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain, That the Mayor of the City be and he is hereby authorized to sell to the Trustees of the University of Pennsylvania, their successors and assigns, "All that certain lot or piece of ground, being part of what is commonly known as the Almshouse Farm, situate in the Twenty-seventh Ward of the City of Philadelphia, and bounded and described as follows, to wit: Beginning at a point where the northeastern boundary line of the said Almshouse Farm intersects the middle of the Darby road; thence along said boundary line southeastwardly, to a point where the same intersects the middle line of Thirty-fourth street (as continued); thence along the middle line of said Thirty-fourth street southward, crossing Locust street, to a point where the said line intersects the middle line of Spruce street, thence along the

middle line of Spruce street (as continued) westward to a point where said line intersects the middle line of Thirty-sixth street (as continued); thence northward along the middle line of said Thirty-sixth street, to a point where said line intersects the middle line of said Darby road; thence along the middle line of said Darby road, by its several courses northeastwardly, to the point where said middle line intersects the said northeastern boundary line of the Almshouse Farm, being the place of beginning, for the price of eight thousand dollars an acre." The area of said piece of ground to be ascertained by a survey thereof, to be made by the proper survey officers of the City of Philadelphia: Provided, That before the deeds shall be executed, the streets (excepting Irving street) as proposed unanimously by the Committee on Poor of Councils shall be first opened and dedicated to the public use, so far as the above property is concerned; And provided, however, That the proceeds of said sale shall be paid to the City Treasurer, and form part of the sinking fund of the City of Philadelphia; And provided, also, That the said Trustees shall, when requested by ordinance or the Survey Department, duly dedicate to the City of Philadelphia for public use as streets and highways, all the ground covered by the streets or parts of streets which shall or may pass over said tract of land; And provided, also, That they, the said Trustees, shall, at the time of their execution of the deed, enter into a sufficient agreement with the City as to require them, without expense to said City: to open, grade, pave and curb said streets, and parts of streets and intersections thereof, at such times and manner as may be deemed necessary by the authorities of said City; And provided, also, That said Trustees shall at the same time enter into an agreement with the City that said property, or improvements to be made thereon, shall not be exempt from taxation, except that portion thereof as is actually in use for University purposes, and that even such exemption shall not be claimed until such time as all the other real estate owned by said University, becomes liable to taxation; And provided also, That the terms of sale mentioned in this ordinance shall be accepted and fully complied with by said purchasers, within six months from the date of the approval by the Mayor of this ordinance, and said purchasers shall pay all expenses for stamps and conveyancing.

SEC. 2. That the Mayor of the City be and is hereby authorized to affix the corporate seal of the City to such deed or deeds as

may be necessary to convey the said tract of land to the said purchasers in accordance with this ordinance.

LOUIS WAGNER,
President of Common Council.

Attest—BENJAMIN HAINES,
Chief of Select Council.

THOMAS A. BARLOW,
President pro tem. of Select Council.

Approved this eighteenth day of December, Anno Domini,
one thousand eight hundred and sixty-nine (A. D. 1869).

DANIEL M. FOX,
Mayor of Philadelphia.

No. 3.

ACQUISITION OF SITE FOR UNIVERSITY HOSPITAL.

AN ORDINANCE

Authorizing the sale and conveyance of a tract of land in the Twenty-seventh Ward to the Trustees of the University of Pennsylvania for hospital purposes.

Whereas, An application has been made to the Councils of the City of Philadelphia by members of the Medical Faculty and Board of Trustees of the University of Pennsylvania, with other citizens, for the grant and conveyance to the said Trustees of the University of Pennsylvania of a tract of land, now in the property of the City, for the purpose of erecting thereon a hospital and buildings pertaining to the instruction to be there given; and in consideration thereof the said Trustees have agreed that the said tract of land when conveyed, shall never be alienated from the said University of Pennsylvania, and to erect and maintain forever on said ground a general hospital containing at least fifty free beds, for the care and relief of the poor in times of sickness or accident.

And whereas, We, the Councils of said City, believe that the proposed object is of the purest benevolence, and a wise disposition of the property of the citizens entrusted to our keeping, therefore :

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain, That for and in consideration of the sum of five hundred (500) dollars in cash, to be paid to the Commissioners of the Sinking Fund of the City, and the covenants and conditions hereinafter set forth, to be kept and performed by the Trustees of the University of Pennsylvania, that the Mayor be and is hereby authorized to sign, seal, acknowledge and deliver on behalf of the City of Philadelphia, the necessary and proper deed of conveyance, whereby all that certain tract or piece of land, situate in the Twenty-seventh Ward, bounded on the north by the middle line of Spruce street, on the east by that of Thirty-fourth street, on the south by that of Pine street, and on the west by that of Thirty-sixth street, containing five and a-half acres, more or less, shall be sold, granted and conveyed unto the said Trustees of the University of Pennsylvania, and their successors, in fee simple, in trust, for and subject, however, to the following uses, covenants and conditions, to wit :

First, That the said tract or piece of land shall be forever held by the said Trustees of the University of Pennsylvania, for the purpose of erecting thereon and maintaining a building or buildings to be devoted to general hospital purposes, as aforesaid.

Second, That the said Trustees shall erect and complete the said building within five years from the first day of July, A. D. 1872.

Third, That said Trustees shall set apart and forever maintain in said hospital, at no time less than fifty free beds, for the use of the poor of the City requiring hospital treatment.

Fourth, That the said Trustees shall report to Councils in the month of January succeeding the erection and completion of said hospital, and annually thereafter, the number of free beds maintained, together with such other information as may be desired by Councils.

Fifth, That in the event of the failure of said Trustees of the University of Pennsylvania to erect and complete the said hospital building within five years from the first day of July, A. D. 1872, or upon said completion they shall refuse or neglect to set apart and forever maintain at all times not less than fifty free beds for

the poor of the City, when requiring hospital treatment, or shall sell or alienate the said tract or piece of land hereby authorized to be conveyed to them, or any part thereof, then such sale and alienation by said Trustees shall be null and void, and the tract or piece of land hereby authorized to be conveyed to said Trustees, with the building or buildings thereon erected, shall revert to, and again become the property and estate of the City of Philadelphia.

SEC. 2. That the covenants and conditions set forth in the first section of this ordinance shall be fully recited in and made a part of the deed and conveyance, to be executed by and between the Mayor on behalf of the City, and the Trustees of the University of Pennsylvania.

SEC. 3. That all ordinances or parts thereof, so far as the same may be inconsistent with the provisions of this ordinance, be and the same are hereby repealed.

LOUIS WAGNER,
President of Common Council.

*Attest—*JOHN ECKSTEIN,
Clerk of Common Council.

W. E. LITTLETON,
President of Select Council.

Approved this eighteenth day of May, Anno Domini, eighteen hundred and seventy-two (A. D. 1872).

WM. S. STOKLEY,
Mayor of Philadelphia.

NO. 4.

ACQUISITION OF LAND IN RETURN FOR CITY PRIZE SCHOLARSHIPS.

AN ORDINANCE

To sell and convey certain lots of land to the Trustees of the University of Pennsylvania.

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain, That the Mayor of this City be authorized

to sign and affix the seal of the City to a deed, in form to be approved by the City Solicitor, which shall convey unto the Trustees of the University of Pennsylvania and their successors, all that lot of ground in the Twenty-seventh Ward of the City of Philadelphia.

I. All that certain lot or piece of ground situate in the Twenty-seventh Ward of the City of Philadelphia, beginning at the northwest corner of Pine street and Thirty-sixth street, thence extending westward along the north side of Pine street one thousand and seventy-three (1073) feet nine (9) inches to the southeast side of Woodlands avenue, thence northeastward along the same six hundred and twenty-six (626) feet nine and three-eighths ($9\frac{3}{8}$) inches to the south side of Spruce street, thence eastward along the same five hundred and thirty-four (534) feet nine and three-quarters ($9\frac{3}{4}$) inches to the west side of Thirty-sixth street, and thence southward along the same three hundred and twenty (320) feet to the north side of Pine street and place of beginning.

II. All that certain triangular lot or piece of ground situate in the Twenty-seventh Ward of the City of Philadelphia, beginning at the corner formed by the south side of Pine street and the northeast side of Cleveland avenue, thence extending eastward along the south side of Pine street nine hundred and ninety-two (992) feet five and three-eighths ($5\frac{3}{8}$) inches to the northwest side of Guardian avenue, thence southwestward along the same seven hundred and eighty-six (786) feet five and three-eighths ($5\frac{3}{8}$) inches to the northeast side of Cleveland avenue, and thence northwestward along the same six hundred and thirty-two (632) feet two (2) inches to the south side of Pine street and place of beginning.

III. All that certain lot or piece of ground situate in the Twenty-seventh Ward of the City of Philadelphia, beginning at the corner formed by the south side of Pine street and the southwest side of Cleveland avenue, thence extending southeastward along the west side of Cleveland avenue six hundred and eighty (680) feet five and one-eighth ($5\frac{1}{8}$) inches to a point, thence southwestward along other ground of the City of Philadelphia one hundred (100) feet and five-eighths ($\frac{5}{8}$) of an inch to ground of the Woodlands Cemetery, thence northwestward along the same seven hundred and forty-one (741) feet eight and seven-eighths

($8\frac{7}{8}$) inches to the southeast side of Woodlands avenue, thence along the same twenty-nine (29) feet seven and three-quarters ($7\frac{3}{4}$) inches to the south side of Pine street, and thence eastward along the same eighty-nine (89) feet and one and one-quarter ($1\frac{1}{4}$) inches to the southwest side of Cleveland avenue and place of beginning, reserving thereout a ground rent to the City of Philadelphia of five hundred (500) dollars per annum, redeemable at any time by the payment to the said City of the sum of ten thousand (10,000) dollars, lawful money of the United States, to have and to hold the said land to the said Trustees for the use of the said University of Pennsylvania for its authorized educational purposes, and subject also to the following conditions, to wit: That the said Trustees of the said University of Pennsylvania shall establish and forever maintain at least fifty (50) free scholarships, of an annual value of not less than seven thousand five hundred (7500) dollars per annum, to be awarded under such conditions as may from time to time be deemed suitable to worthy and deserving students of the Public Schools of Philadelphia: And further, That they shall cause to be made and maintained, on the line of Thirty-seventh street, between Spruce and Pine streets, on the first lot of said ground, a flagged footwalk, open at all times to the public: And further, That said land shall never be alienated by the Trustees of the University of Pennsylvania without the consent of the City: And further, That no buildings other than for educational purposes shall ever be erected thereon: And further, That if Cleveland avenue should be widened to a width not exceeding one hundred (100) feet, the said Trustees will dedicate the land taken to public use.

WILLIAM HENRY LEX,
President of Common Council.

Attest—GEORGE W. KOCHERSPERGER,
Assistant Clerk of Common Council.

GEORGE W. BUMM,
President of Select Council.

Approved this twenty-fourth day of January, Anno Domini
one thousand eight hundred and eighty-two (A. D. 1882).

SAMUEL G. KING,
Mayor of Philadelphia.

No. 5.

RESERVATION OF LAND FOR PARK PURPOSES.

AN ORDINANCE

To set apart a portion of the Almshouse property, to be improved for the health and public welfare of the citizens of Philadelphia, and providing for the grading of the same.

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain, That all the Almshouse property in West Philadelphia, bounded by South street, Spruce street, Thirty-fourth street, Vintage avenue, on to the southern boundary of the city property, and thereto to the Schuylkill river, and Schuylkill river be, and is, hereby set apart for the purposes of being improved, for the health and public welfare of the citizens of Philadelphia.

SEC. 2. That the Chief Engineer and Surveyor is hereby authorized to appoint two laborers to level the ashes, etc., that may be placed on said ground, so that the property may be filled up to a proper level to the Port Warden's line; and that all citizens are hereby authorized to dump ashes, etc., thereon, under the direction of the Chief Engineer and Surveyor, until the same is raised to a proper level.

SEC. 3. That the Chief Commissioner of Highways is authorized to draw warrants for the payment of said laborers, for grading streets, in the annual appropriation to the Department of Highways.

Approved the sixth day of July, A. D. 1883.

SAMUEL G. KING,

Mayor of the City of Philadelphia.

No. 6.

ORIGINAL SALE OF LAND NOW OCCUPIED BY FOULKE & LONG INSTITUTE.*

AN ORDINANCE

Directing the Mayor and Commissioner of Markets and City Property to offer at public sale a certain lot of ground in the Twenty-seventh Ward.

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain, That the Mayor and Commissioner of

* This piece of land was subsequently purchased by the Foulke & Long Institute from Joseph M. Bennett, Esq.

Markets and City Property be, and they are, hereby authorized and directed to offer at public sale all that certain lot of ground belonging to the City of Philadelphia described as follows, to wit: Beginning at the northeast corner of Thirty-fourth and Locust streets, in the Twenty-seventh Ward of said city, thence extending north along the east side of said Thirty-fourth street a distance of one hundred and ninety-six (196) feet ten and one-eighth ($10\frac{1}{8}$) inches, to a point; thence along a line bearing south fifty (50) degrees twelve (12) minutes thirty (30) seconds east, a distance of four hundred and eight (408) feet eleven and one-eighth ($11\frac{1}{8}$) inches, to a point on the north side of Locust street; thence west along the north side of said Locust street, a distance of three hundred and fifty-eight (358) feet five and one-half ($5\frac{1}{2}$) inches, to the place of beginning: Provided, That the sale of said lot shall be subject to the confirmation of said Councils.

Approved the fifth day of April, A. D. 1884.

SAMUEL G. KING,
Mayor of Philadelphia.

No. 7.

ACQUISITION OF LAND NOW OCCUPIED BY THE WISTAR
INSTITUTE.

AN ORDINANCE

To sell and convey a certain lot of land to the Trustees of the University of Pennsylvania.

SECTION 1. The select and Common Councils of the City of Philadelphia do ordain, That the Mayor of this City be authorized to sign and affix the seal of the city to a deed, in form to be approved by the City Solicitor, which shall convey unto the Trustees of the University of Pennsylvania and their successors, all that certain lot or piece of ground situate in the Twenty-seventh Ward, of the City of Philadelphia, described as follows, viz: Beginning at a point the intersection of the westerly line of Thirty-sixth street with the southeasterly line of Woodland avenue; thence extending along the southeasterly line of said Woodland

avenue south 70 degrees, 18 minutes and 7 seconds west 248 feet 3 inches to ground occupied by the City Police Station; thence along said ground south 4 degrees, 20 minutes and 26 seconds east 115 feet 6 inches to the northerly line of Spruce street; thence along said line south 78 degrees, 59 minutes east 182 feet 10 $\frac{5}{8}$ inches to the westerly line of said Thirty-sixth street; thence along the same north 11 degrees 1 minute east 237 feet 11 inches to the southeasterly line of said Woodland avenue and place of beginning; in consideration of the sum of one dollar to have and to hold the said lot to the said Trustees for the use of said University for its authorized educational purposes, subject also to the following conditions: That the said land shall never be alienated by the Trustees of the University of Pennsylvania without the consent of the City, and further, that no buildings other than such as shall be essential to the educational system of the University shall be erected thereon; and further, That the said Trustees will erect and maintain a fire-proof library building, and provide means to maintain it, as a free library of reference open to the entire community, and that work thereon shall be begun within four months from the date of the conveyance.

Approved the twenty-first day of March, A. D. 1888.

EDWIN H. FITLER,
Mayor of Philadelphia.

NO. 8.

VACATION OF LOCUST STREET FROM COLLEGE CAMPUS.

AN ORDINANCE

To strike from the plan of the City Locust street, between Woodland avenue and Thirty-fourth street, in the Twenty-seventh Ward.

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain, That the Department of Public Works be authorized to revise Plan No. 43, by striking therefrom Locust street between Woodland avenue and Thirty-fourth street, in the Twenty-seventh Ward.

Approved the third day of April, A. D. 1888.

EDWIN H. FITLER,
Mayor of Philadelphia.

No. 9.

**PURCHASE OF LAND, NOW OCCUPIED BY LABORATORIES, AND
ALSO OF THAT NOW KNOWN AS FRANKLIN FIELD.****AN ORDINANCE**

To confirm the sale of certain real estate belonging to the City of Philadelphia.

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain, That the sale made, after due advertisement, on Tuesday, twelfth day of March, Anno Domini 1889, by Messrs. M. Thomas & Sons, auctioneers, at public sale, by order of Edwin H. Fitler, Mayor, and William S. Stokley, Director of the Department of Public Safety, pursuant to the provisions of an ordinance approved January 24, 1889, entitled "An Ordinance directing the Mayor and Director of the Department of Public Safety to offer at public sale five certain lots or pieces of ground in the Twenty-seventh Ward, to wit: No. 1. All that lot of ground situate on the south side of Locust street, on the east side of Thirty-fourth street, on the northeasterly side of South street, and on the northwesterly side of Thirty-third street, in the Twenty-seventh Ward, containing in front, on said Locust street, four hundred and forty-one (441) feet, one and one-eighth ($1\frac{1}{8}$) inches on said Thirty-third street, four hundred and forty-two (442) feet five and one-half ($5\frac{1}{2}$) inches, on said South street two hundred and thirty-six (236) feet three and one-half ($3\frac{1}{2}$) inches and on said Thirty-fourth street two hundred and thirty-eight (238) feet nine and seven-eighths ($9\frac{7}{8}$) inches. No. 2. All that certain lot of ground at the northeast corner of Thirty-third and South street, in the Twenty-seventh Ward; thence extending along the said Thirty-third street northeasterly three hundred and forty-six (346) feet to the line of property lately leased to the Keystone Battery; thence extending along the said line southeasterly one hundred and seventy-four (174) feet eight and one-quarter ($8\frac{1}{4}$) inches to a point; thence still along the said line northeasterly ninety-six (96) feet five and one-half ($5\frac{1}{2}$) inches to Marston street, thence along the said Marston street southeasterly three hundred and fifty-four (354) feet to Meadland avenue; thence by the said Meadland avenue southwesterly four hundred and forty-two (442) feet five and one-half ($5\frac{1}{2}$) inches to South street; and thence by said South street northwesterly five

hundred and twenty-eight (528) feet eight and one-quarter ($8\frac{1}{4}$) inches to Thirty-third street, and place of beginning. No. 3. All that lot of ground beginning at the northeast corner of Meadland avenue and South street, in the Twenty-seventh Ward; thence extending along the said Meadland avenue northeasterly four hundred and forty-two (442) feet five and one-half ($5\frac{1}{2}$) inches to Marston street; thence along the said Marston street southeasterly one hundred and sixty-six (166) feet five and three-eighths ($5\frac{3}{8}$) inches to the line of land now or late, of the West Chester and Philadelphia Railroad Company; thence, by the same, in a southwesterly direction, four hundred and forty-six (446) feet nine and three-quarters ($9\frac{3}{4}$) inches to South street; and thence by said South street northwesterly two hundred and fourteen (214) feet three and one-eighth ($3\frac{1}{8}$) inches to Meadland avenue, and place of beginning, unto William Pepper, Provost of the University of Pennsylvania, for the sum of one hundred and forty-nine thousand and eight hundred (149,800) dollars. No. 4. All that triangular lot of ground situate at the north corner of Meadland avenue and Marston street, in the Twenty-seventh Ward, beginning at the intersection of said Meadland avenue and Marston street; thence northeasterly along said Meadland avenue eleven (11) feet one and one-quarter ($1\frac{1}{4}$) inches to the Almshouse line, being the northeasterly line of property belonging to the City of Philadelphia, and known as the Almshouse property; thence northwesterly one hundred and thirty-six (136) feet one and three-eighths ($1\frac{3}{8}$) inches along the said Almshouse line to the northeasterly side of the said Marston street; thence southeasterly along the line of the said Marston street, one hundred and thirty-five (135) feet eight (8) inches, to the place of beginning. No. 5. All that lot of ground situate on the east corner of Meadland avenue and Marston street, in the Twenty-seventh Ward, beginning at the point of intersection of said Meadland avenue and Marston street; thence northeasterly, along said Meadland avenue sixteen (16) feet one and one-eighth ($1\frac{1}{8}$) inches, to the Almshouse line, being the northeasterly line of property belonging to the City of Philadelphia, and known as the Almshouse property; thence southeasterly along the Almshouse line, one hundred and thirty-eight (138) feet eight and seven-eighths ($8\frac{7}{8}$) inches, to the line of the West Chester and Philadelphia Railroad Company; thence along the said line southerly twenty-nine (29) feet and three (3) inches, to the

northeast side of said Marston street ; thence northwesterly, along said Marston street, one hundred and forty-nine (149) feet one and three-quarters ($1\frac{3}{4}$) inches to Meadland avenue, and place of beginning, to J. M. Gummey & Sons, for the sum of two thousand two hundred (2200) dollars, be and the same is hereby confirmed.

SEC. 2. The Mayor of the City of Philadelphia is hereby authorized, empowered and directed, upon the said purchasers paying the amounts of purchase money, after deducting the necessary expenses of said sale, to execute, under the corporate seal of the City of Philadelphia, acknowledge and make proof of said seal, and deliver a deed conveying said premises unto said purchasers in fee absolutely: Provided, That the said purchase money shall be paid within thirty (30) days after the passage of this ordinance.

The said payment to be made to the City Treasurer, through the Department of Public Safety, Bureau of City Property.

Approved the thirtieth day of March, A. D. 1889.

EDWIN H. FITLER,
Mayor of Philadelphia.

No. 10.

ACQUISITION OF THE NORTHEAST CORNER OF THIRTY-FOURTH
AND SPRUCE STREETS.

AN ORDINANCE

To vacate a certain piece of ground at Thirty-third and South streets, for the purpose of straightening streets, and to convey the same to the Trustees of the University of Pennsylvania.

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain. That all that tract of land beginning on the east side of Thirty-fourth street, at a point two hundred and twenty-five (225) feet seven and one-quarter ($7\frac{1}{4}$) inches south of the south line of Locust street ; thence southwardly along the east line of Thirty-fourth street one hundred and fifty (150) feet, more or less, to its intersection with the north side of Spruce street ; thence eastwardly along the said north line of Spruce street

one hundred and ninety (190) feet, more or less, to its intersection with the west line of Thirty-third street ; thence northeastwardly along the west line of Thirty-third street fifteen (15) feet, more or less, to a point on the west line of Thirty-third street, four hundred and forty-two (442) feet five and one-half ($5\frac{1}{2}$) inches southwardly of the south side of Locust street ; thence northwestwardly two hundred and sixty (260) feet three and one-eighth ($3\frac{1}{8}$) inches to the point of beginning, shall be vacated, and that so much of the ordinance approved June 21, 1892, providing for the paving of the said piece of ground hereby vacated be, and the same is hereby repealed, and that the Mayor of this City be authorized to sign and affix the seal of the City to a deed for the consideration of one (1) dollar, in form to be approved by the City Solicitor, which shall convey unto the Trustees of the University of Pennsylvania all the tract of land thus vacated and hereinabove described, to have and to hold the said land to the said Trustees for the use of the said University of Pennsylvania for its authorized educational purposes, and subject to the conditions that said land shall never be alienated by the Trustees of the University of Pennsylvania without the consent of the City, and further, that no buildings, other than for educational purposes, shall ever be erected thereon.

Approved the thirteenth day of January, A. D. 1892.

EDWIN S. STUART,
Mayor of Philadelphia.

No. 11.

TRANSFER OF LAND BY THE UNIVERSITY TO THE WISTAR
INSTITUTE.

AN ORDINANCE

To authorize the Trustees of the University of Pennsylvania, to sell and convey, part of the lot of land conveyed to the said Trustees by the City of Philadelphia, under the terms of an ordinance approved the twenty-first day of March, 1888.

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain, That the consent of the City of Philadelphia is hereby given to the conveyance of such portion as shall be found expedient, of a lot of land in the Twenty-seventh Ward, of

the City of Philadelphia, as was conveyed to the Trustees of the University of Pennsylvania under the authority of an ordinance approved March 21st, 1888, by the Trustees of the University of Pennsylvania, to a corporation to be organized for the purpose of establishing a museum to receive and preserve anatomical and other specimens, and to promote the study of biology, anatomy, and kindred sciences.

Approved the nineteenth day of March, A. D. 1892.

EDWIN S. STUART,
Mayor of Philadelphia.

NO. 12.

ACQUISITION OF LAND FOR MUSEUM AND PARK PURPOSES.

AN ORDINANCE

To authorize the immediate opening of a portion of the Almshouse grounds set apart for park purposes by the Ordinance approved July 6, 1883, for public use as a Museum and Botanical Garden and Park, and conveying the same to the Trustees of the University of Pennsylvania in trust for the purposes herein set forth.

SECTION 1. *The Select and Common Councils of the City of Philadelphia do ordain*, That so much of the Almshouse grounds which was set apart for public park purposes under and by virtue of the ordinance approved July 6, 1883, as is described as follows: All that certain lot or piece of ground in the Twenty-seventh Ward of the City of Philadelphia, beginning at the southeast corner of Thirty-fourth and Spruce streets, thence extending eastward along the south side of Spruce street to its intersection with the southwest side of South street, thence along the same southeastward to the northwest boundary of the right of way of the West Chester and Philadelphia Railroad, thence along the same southwestward to the northeast side of Almshouse or Blockley lane, thence along the same to the northwest boundary line of the present Water Department storage yard, thence following the direction of this line to the northeast for a distance of four hundred (400) feet, more or less, thence northwestward along a line parallel to and thirty (30) feet to the northeast of the northeast wall of the present Almshouse stone barn, for a distance of three hundred and fifty (350) feet, more or less, thence southwestward

along a line parallel to and about thirty (30) feet to the northwest of the northwest wall of the aforesaid barn, to its intersection with the east side of Thirty-fourth street, thence along the same to the south side of Spruce street, and place of beginning, containing eight acres, more or less, shall be forthwith opened to use as a public park forever.

SEC. 2. For the purpose of securing the suitable improvement of the same, said lot of ground above described shall be conveyed to the Trustees of the University of Pennsylvania in trust to lay out and maintain the same forever as and for a Museum and a Botanical Garden and Park without expense to the City of Philadelphia, to be opened to the free access of the public at all times forever, under suitable regulations, to be from time to time agreed upon by the said Trustees and Mayor of the said city; and also to erect thereon a Museum of Science and Art, without expense to the said city: *Provided*, That the said grounds shall be placed in the proper condition for the purposes of this ordinance within five years from the date of the execution of the deed creating and accepting said trust herein created, said deed of trust to be prepared by the City Solicitor with all suitable covenants and provisions necessary to carry out the intent of this ordinance, and secure the privileges to all parties herein named, to be executed by the Mayor of the City, and the said Trustees, with the proper legal authority, accepting the same: *And provided further*, That in the event of the failure on the part of said Trustees of the University of Pennsylvania to place the said grounds in the proper condition for the purposes hereof within the said five years, or of maintaining the same as a Museum and a Botanical Garden and Park, and keeping the same open to the public as aforesaid at all times hereafter forever, or shall divert the said ground to any other purposes than those specified in this ordinance, then the trust created by this ordinance shall cease and determine, and this ordinance and all privileges granted hereunder shall become null and void, and the said property shall revert to the City of Philadelphia free, clear and discharged of any and all trusts hereby created, or expenses or obligations created by reason of this ordinance.

Approved the thirtieth day of March, A. D. 1894.

EDWIN S. STUART,
Mayor of Philadelphia.

ESTABLISHMENT OF THE PHILADELPHIA MUSEUMS.

AN ORDINANCE

For the creation of a Board of Trustees for establishing Public Museums, and for placing in its custody certain educational and economic collections belonging to the City of Philadelphia, and to authorize certain transfers therefor.

SECTION 1. *The Select and Common Councils of Philadelphia do ordain* : That with a view of promoting the development of a great group of museums, general, scientific, economic, educational, and commercial, the Councils of the City of Philadelphia do hereby delegate the collections secured by Professor W. P. Wilson from the World's Columbian Exposition, at Chicago, as the representative of the Mayor and Councils of the City of Philadelphia, in trust to a Board of Trustees, to be known as the Board of Trustees of the Philadelphia Museums, composed of the Mayor of the City of Philadelphia, *ex-officio*; the Presidents of both Branches of City Councils, *ex-officio*; the President of the Board of Public Education, *ex-officio*; the Superintendent of Public Schools, *ex-officio*; a representative of the Board of Public Education, and of the Park Commission, elected by both representative bodies, with one citizen to be elected annually by each Branch of City Councils; and Charles H. Cramp, Clarence H. Clark, Daniel Baugh, Sara Y. Stevenson, Thomas Dolan, William Pepper, Charlemagne Tower, Jr., and Arthur Biddle; and which Board of Trustees shall take steps to secure funds and a suitable site for museum buildings to accommodate said collections, and shall have power to elect its own officers: Provided, That all vacancies in the said Board of Trustees shall be filled by the Mayor, subject to confirmation by Select Council, excepting *ex-officio* members, representatives of Boards of Public Education and Park Commission, and the citizens elected by each branch of Councils.

SECT. 2. The City Controller is hereby authorized and directed to make the following transfers, viz: from Item 53½ for educational museum seven thousand five hundred (7,500) dollars and eight (8) cents in the annual appropriation to the Board of Public Education for the year 1894, and from Item 19½ for economic museums ten thousand and ninety-two (10,092) dollars and four (4) cents, in the annual appropriation to the

commissioners of Fairmount Park for said year, in all seventeen thousand five hundred and ninety-two (17,592) dollars and twelve (12) cents, to new Item 10½ in the annual appropriation to the Mayor for said year for the purposes of the Board of Trustees mentioned in the first section of this ordinance.

Approved the fifteenth day of June, A. D. 1894.

EDWIN S. STUART,
Mayor of Philadelphia.

APPENDIX No. IV.

DEPARTMENT OF ARCHÆOLOGY AND PALÆONTOLOGY.

REPORT OF THE PRESIDENT.

The Department of Archæology and Palæontology was created by the Trustees of the University of Pennsylvania in December, 1891.

Its purposes are to provide instruction in Archæology, Ethnology and Palæontology, and to extend scientific inquiry by means of original investigation into the study of these subjects. Among the means employed by it to accomplish these are : first, the establishment of a Museum and Library which shall be open to students and to others seeking information in this direction ; second, courses of lectures ; and third, the sending out of exploring expeditions, or the assisting of explorers already in the field who may be pursuing researches in which this Department is interested.

The Department is now made up of seven Sections, which are devoted respectively to the following subjects : American and Prehistoric Archæology, Asia and General Ethnology, Babylonian Archæology, Egyptian and Mediterranean Archæology, Glyptology, Casts and Palæontology.

The government of the Department is vested in a Board of Managers. Under them is the Director of the Museum, who has charge of the relations of the Museum with other museums and institutions, and is its general executive officer. Each of the seven Sections of the Department is under the supervision of a

special committee of the Board of Managers ; and the Museum is divided into seven corresponding Sections, each in charge of a Curator who is made responsible for the care of its collections.

The Department is supported by the annual subscriptions of the members of the University Archæological Association, and by gifts from its sympathizers and friends. It receives no financial aid from the University.

Its collections are displayed at present in the Library Building of the University, at Thirty-fourth street and Woodland avenue ; though this accommodation is far short of what is necessary for its growing demands by reason of the constantly increasing number of objects of great interest and rarity which it is acquiring.

A movement is now being made to secure money for the erection of a commodious, convenient, fire-proof building upon the grounds of the University to which the collections of the Department may be removed. This building is intended to provide for the proper arrangement and display of the objects in order that they may be made available to students and accessible to visitors ; to contain lecture rooms in which instruction may be given directly within reach of the specimens which illustrate it ; to receive donations of collections already formed, and to offer a safe repository for such loan collections as their owners may consent to exhibit there, to the advantage of the University of Pennsylvania and the benefit of the general public.

The attention of the members of the Association is most earnestly directed to the urgency of this undertaking. A considerable sum of money has already been subscribed toward this building fund which, though not equal to the needs, assures the ultimate accomplishment of the purpose in view ; and it is believed that the money yet required will be subscribed by those who desire to secure to this community the advantages derived from so broad a field of enlightenment in Philadelphia.

The practical work of the Department during the last year has been of unusual importance, notably in connection with the great Spanish-American Exhibition held at Madrid during the summer of 1893, in honor of the discovery of America, as well as with the World's Columbian Exposition at Chicago, in 1894.

The Department sent to the Exhibition at Madrid, under the personal charge of the Director, Mr. Culin, a collection of American Archæological specimens which met there with an exceedingly

cordial reception from the Spanish authorities, and proved to be of great interest to the visitors and scholars who went to Madrid upon that occasion from every part of Europe. At the close of the Exhibition the Junta Directiva awarded to the Department in recognition of its merits as an exhibitor, a medal of the highest class. The Director was enabled through this Exhibition at Madrid to acquire very important additions to the collections of the Museum.

At the Columbian Exposition at Chicago, the display made by the Department of Archæology and Palæontology was much larger and more important than at Madrid, because the collections were in this instance more readily transported to destination; and the exhibits included, besides the specimens from the American Section, very carefully selected illustrations of ancient civilization from the cases of our Egyptian, Mediterranean and Babylonian Sections at the Museum.

The Egyptian and Mediterranean Section exhibited collections representing the very latest archæological work done in Egypt by Mr. W. M. Flinders-Petrie, as well as a collection from Cyprus, obtained from the well-known explorer Dr. Max Ohnefalsch-Richter; and it is especially gratifying to note that the collection from ancient Nippur exhibited by the Babylonian Section, represented at Chicago the only work of exploration carried under the auspices of an American Institution in the field of the Old World Archæology.

The importance of the scientific results of this expedition cannot be overestimated. Some of the best specimens were displayed, carefully classified and labeled by the Curator, Dr. Hermann V. Hilprecht, and the whole work represented by the exhibit shed lustre not only upon the Department of Archæology, but upon the University of Pennsylvania.

As a result, we have the satisfaction of knowing that our Department by thus contributing to the dissemination of knowledge and information, not only excited the evident interest of the public, but took rank by the assent of those officially appointed to decide, among the foremost representatives of learning and scientific investigation.

The Department received seven awards from the judges of the Exposition, and it was also enabled to make exceedingly valuable additions to its collections through the courtesy of foreign governments and their representatives. In this

connection are to be mentioned the generous gifts of the Government of Costa Rica and the Government of Venezuela, as well as a valuable exchange made with the Imperial Museum of Tokio, Japan.

The obligations of the managers are due to several individual supporters of the Museum who contributed money after the Columbian Exposition had closed, to enable us to take advantage of an opportunity not likely to recur, and to secure several valuable additions to our collections which otherwise must have gone elsewhere.

The American Section, of which Mr. Henry C. Mercer has been elected Honorary Curator, has extended its investigations through Mr. Mercer's personal activity during the year, and with noteworthy results in the Valley of the Delaware River in Pennsylvania and New Jersey, and into the prehistoric caves of Tennessee. It has enriched its collection also by generous gifts and by the loan of many valuable specimens. It is especially indebted in this respect to Mr. Charles Laubach, Dr. Robert H. Lamborn, Mr. F. C. Macauley, Dr. C. C. Abbott and Dr. Carl Lumholtz, the latter of whom has recently presented a series of objects illustrating the life of the tribes living in the caves of the Sierra Madre (Chihuahua), including pre-Columbian as well as modern skulls, etc., collected by him during his recent expedition into northern Mexico.

The work of the Babylonian Section has been industriously carried on by the Curator, Dr. Hermann V. Hilprecht, in three different directions, aside from the devotion of much time and careful study to the cleaning, cataloguing and labeling of the "Nippur Collections" now at the Museum, and from the careful preparation and display of the Chicago Exhibit which safely returned in December.

First. The excavations at Nippur have been continuously pursued under the personal supervision of the Director, Mr. J. H. Haynes, in the summer season as well as during the winter months, and the very important result has been obtained that the great Temple of Bêl from the top to its foundation, about 140 feet in height, is now almost completely uncovered, and all its annexes and shrines will soon be thoroughly explored. It is expected that discoveries of a permanent value to archæological science will be made upon that site during the coming year. It has already produced many inscribed stones, cuneiform tablets and other

objects illustrative of the temple service, the life, customs and religion of the Babylonian people 4,000 years before the Christian era.

Second. The first part of the results of the Babylonian Expedition was published during the year, ("Old Babylonian Inscriptions chiefly from Nippur," by H. V. Hilprecht, Ph. D., Philadelphia, 1893), and the second part is expected to be published through the liberality of the American Philosophical Society within the next few months. A volume upon the cuneiform texts of the Cassite period (c. 1700-1200 B. C.), and another upon the tablets from Cappadocia, of which the Museum possesses the richest collection, are also in the course of preparation.

Third. During the summer of 1893, Dr. Hilprecht was sent to Constantinople by the Babylonian Publication Committee, in order to examine the inscriptions of the cuneiform tablets which had been deposited there according to the laws governing the disposal of such objects in the Turkish Empire. He spent five weeks in making these investigations, and at the end of that time he was requested by His Excellency, Hamdy Bey, Director General of the Imperial Ottoman Museum, to remain in Constantinople five weeks longer for the purpose of reorganizing the Semitic Section of the Imperial Museum and furnishing the basis for a catalogue for that section. Dr. Hilprecht complied with the request, and, in recognition of his services, Hamdy Bey presented to the University of Pennsylvania a number of valuable casts of Babylonian, Phœnician, Sabæan and Greek inscriptions.

Rev. F. W. Klingensmith, who during the past year has been studying Semitic languages in the University, has received the Assyrian fellowship for the year 1893-1894.

The scientific value and the influence of the Egyptian Section have been widely extended by the patient industry and the scholarly attainments of Mrs. Cornelius Stevenson, its Honorary Curator, during the past year. Its contribution to the World's Columbian Exposition at Chicago, which was especially notable among the foremost exhibits illustrative of the history of civilization, did great service to the University of Pennsylvania, by bringing it into contact with the representatives of other universities and of learned societies, as well as with scholars, from every part of the world. An important result to the Museum has been the loan made to it, at Mrs. Stevenson's solicitation, of the "de Potter Collection," one of the most valuable collections of

Egyptian bronze statuettes and other small objects in this country. Another result of scientific value was the co-operation of this Section with the Drexel Institute and the Academy of the Fine Arts to bring to Philadelphia for public exhibition the rare Græco-Egyptian portraits known as the "Graf Collection," which the owner consented to deposit at the Academy of the Fine Arts, in Philadelphia, for several weeks after the close of the Columbian Exposition and before returning with it to Europe. During the presence here of this collection Mrs. Stevenson delivered two public lectures upon Ancient Painting, before large and interested audiences—one at the Drexel Institute and the other at the Academy of the Fine Arts—upon which occasions she used the portraits of this precious collection to illustrate her subject.

Mrs. Stevenson has also delivered a series of lectures, in the course of which she has received valuable assistance from Dr. Daniel G. Brinton, Mr. Henry C. Mercer, and Dr. Morris Jastrow, Jr., at the New Century Club, for the purpose of directing attention to the subject of archæology and of developing more general interest in the studies relating to it. She has met there with extremely promising results; and, in addition to this work, she has arranged with the American Journal of Archæology for the publication of the collections in the Egyptian Section.

The Section is indebted to the generous interest of Mrs. John Harrison, who has added to her numerous former gifts a fine mummy of the Ptolemaic period, which she secured whilst she was in Egypt, in 1892, as well as many other objects of importance. It owes its grateful recognition, also, to Dr. Robert H. Lamborn, to Mr. Daniel Baugh, to Mr. Harry Rogers, to Mrs. George L. Harrison, Jr., to Mrs. William Weightman, Jr., and to Mr. Charles H. Cramp—all of whom have made valuable contributions to the Museum.

A very curious Roman portrait bust, from El-Khargeh, in the Great Oasis, formerly belonging to the "Graf Collection" of Græco-Egyptian Mummy-portraits, as well as a fine gold ring of King Amenhotep III (?), were purchased by the Egyptian Section, for the Museum, as also a number of historical scarabs, with the purpose of beginning the formation of a chronological series. In this connection it is hoped that travelers upon the Nile will be mindful of the University Museum, and of the importance of increasing its collections.

The Section of Glyptology was established by Professor Maxwell Sommerville, who, after having devoted many years to the study of the glyptic art, has made a rare collection of gems and talismans, now widely known as the "Sommerville Collection." This collection Professor Sommerville brought with him to America upon his return from an extended residence abroad, and, with a patriotic desire for the advancement of culture in his own country, he has deposited it, to that end, for public inspection, in the Museum of Archæology and Palæontology of the University of Pennsylvania, where he has also consented to perform the service of Curator of the Section of Glyptology.

The Section having been thoroughly organized during the past year, and having obtained a distinct position in the Museum, careful attention has been given to the systematic classification of the objects, with reference to the epochs which they represent respectively. At the same time no opportunity has been neglected which might afford new acquisitions. Professor Sommerville reports that he examined personally the mass of antique objects from every part of the world that was offered for sale at the Columbian Exposition at Chicago. He found, however, comparatively few specimens of great intrinsic value which are not already well represented in the Museum, though he acquired some interesting engraved gems and two Babylonian cylinders, one of which bears upon it a figure apparently undergoing the punishment of flagellation. He has increased the collection also by the purchase of amulets, which he considers his richest acquisition in Chicago, and of talismans from Algiers, Bulgaria, Korea, India, Johore, Syria, and Turkey, with specimens from the Pueblo Indians.

The Curator has continued throughout the year his work of preparing a technical description of the collection, of which some sixteen hundred objects still remain to be described.

By the aid of private subscriptions made by members of the Board of Managers of the Museum, glass cases have been furnished for the display of the collection, in which it is now arranged, in the west and southwest rooms of the Glyptic Section on the upper floor of the Library Building of the University of Pennsylvania.

Professor Sommerville has directed the construction, at his own expense, of 267 new velvet-lined cases, for the purpose of exhibiting separate gems and talismans to greater advantage.

He has, also, decorated the walls of the rooms of his Section with East India textiles. By a decision of the Board of Managers, this Section will be open to the public upon Monday and Wednesday in every week, from 3 o'clock p. m. to 5, and Professor Sommerville desires to be quoted as saying, that "these facilities being offered, it is hoped that an increased interest in the welfare of our University Museum may be aroused in the community by these evidences of our progress."

A Section of Casts has been established in the Museum during the past year, under the chairmanship of Arthur Biddle, Esq., of which Mrs. Charles Platt, Jr., has accepted the secretaryship. The first meeting of its committee was held on the seventh of November, 1893, and upon that occasion it was decided to lay the foundation of a collection of casts by purchasing certain reproductions of ancient Greek and Roman sculpture that had been exhibited during the summer at Chicago. The cost of those objects was afterwards found, however, to be so great, that the means of the Section would not justify their acquisition. It was then decided to raise a fund for the purpose of buying a number of casts which were at the Peabody Museum of Archaeology, and were the result of important scientific explorations undertaken in Honduras and Guatemala under the auspices of Harvard University; and a sub-committee, consisting of Mrs. Cornelius Stevenson, Chairman, Mrs. Arthur V. Meigs, Mrs. Charles Platt, Jr., Mr. Wilson Eyre, Jr., and Mr. Biddle was appointed to superintend directly the purchase of such casts as may be considered desirable for the Museum. This sub-committee has decided to make a purchase of certain of the casts at the Peabody Museum.

A collection of photographs has already been bought by the Section of Casts to illustrate interesting archæological objects at Copan (Honduras); and in furtherance of the general purposes of this Section, the committee has determined to hold an entertainment at the Academy of the Fine Arts on the fourth of April, the net proceeds of which shall be divided equally between the Section of Casts and the Academy of the Fine Arts.

Through the efforts of the committee of this Section, in which the zealous interest of Mrs. Charles Platt, Jr., is especially to be distinguished, the sum of \$1000 has already been raised by subscription for the extending of this very promising new development in the University Museum.

The Section of Asia and General Ethnology was formed at the annual meeting of the University Archæological Association in January, 1894, out of what was formerly designated the Oriental Section. Its development thus far, although of unquestionable importance, has been confined to one or two special branches of ethnology. At the request of the management of the World's Columbian Exposition, Mr. Stewart Culin, the Curator of the Oriental Section, was enabled, by his presence in Chicago, to exhibit there the important collection of Oriental games which he has formed with unexpectedly interesting results. Mr. Culin declares, in his annual report to the Board of Managers of the department, that he has succeeded in demonstrating the family relation of most of the principal games of Europe and Asia, and their common origin in many instances. He points out, also, the remarkable resemblance between them and the native games of the American Indians, which he believes to arise from a parallel development, rather than from transmission.

A detailed report, in which the American games will be described by Mr. Frank Hamilton Cushing, and the Oriental games from specimens in the University Museum, by Mr. Stewart Culin, will shortly be published by the United States Bureau of American Ethnology, at Washington.

The late acquisitions of this Section, made up largely of objects obtained at the Columbian Exposition, include an important series from H. H. The Sultan of Johore; Chinese porcelain images; masks, weapons, etc., from Ceylon, and games of all countries; a series of military banners from Korea, and a valuable deposit of Indo-Greek sculptures from Afghanistan.

The Archæological Library, begun a year ago by Dr. Robert H. Lamborn, who then deposited 400 volumes for the use of students of archæology, has been greatly added to by the generosity of the founder, and to-day numbers over 1800 volumes; twenty more boxes of books are announced as on the way.

The usefulness of this adjunct to the Museum cannot be overestimated, and the enlightened liberality of Dr. Robert H. Lamborn is worthy the highest recognition.

The Museum is opened to students and to the public every week-day, from 10 o'clock a. m. to 5 p. m.

Respectfully submitted,

CHARLEMAGNE TOWER, JR.,
President.

APPENDIX No. V.

REPORT ON UNIVERSITY EXHIBITS IN COLUMBIAN EXPOSITION.

*January 2, 1894.*DR. WILLIAM PEPPER, *Provost.*

Dear Sir: I have the honor to report to you, and to the Board of Trustees, the completion of the work entrusted to me in Chicago during the past year. This work was of two kinds. *First*, the making of an exhibit in the Department of Liberal Arts of the World's Columbian Exhibition, and *second*, the securing of specimens, objects, books and other materials for the enrichment of the University laboratories and libraries.

The exhibit of the University had an excellent position in the south gallery of the Manufactures and Liberal Arts Building, fronting on two main aisles. The space occupied was 48 by 28 feet or about 1300 square feet. This was about half the space assigned to Princeton, about one-fifth of the space occupied by Harvard, and was about equal to the space of the University of Michigan. The fact that space was not assigned to the University until late in February, 1893, interfered somewhat with the preparation of the exhibit, as it was then too late to make special preparation in the various laboratories. The exhibit as finally arranged consisted of these parts:

1. A collection of 142 photographs illustrating the exterior of all the buildings, and the interiors of all departments.
2. An exhibit from the School of Architecture, consisting of drawings and plans, the work of the students of that Department.
3. An exhibit of the Veterinary School, consisting of Pathological preparations, the work of the students.
4. A Biological exhibit of pictures and microscopic sections by students. Dr. Greenman's Ryder microtome was also exhibited with specimens of its work. In the same room was shown Dr. Greenman's new Contour apparatus.
5. An exhibit of the Reaction-time apparatus from the laboratory of Experimental Psychology, arranged for actual experiments.
6. An exhibit of the periodical publications of the University; a set of books and other publications by the present members of the University staff.

7. A set of charts of statistics showing the development of the University, especially during recent years.

8. A complete set of the Muybridge photographs in animal locomotion, the results of the work of Professor Muybridge, under the auspices of the University some years ago.

9. Representative collections illustrating the University Department of Archæology, comprising collections from Egypt, the Mediterranean, Babylon, Africa and America. This Archæological exhibit occupied one-third of the space assigned to the University, and attracted a large degree of scientific and popular interest.

Judged purely from a popular standpoint, the exhibit seems to have compared favorably with other University exhibits. There is cause for regret, nevertheless, that the interest of all the departments could not be secured, as without their co-operation the exhibit was necessarily incomplete, and to that extent not representative, but the general impression made by the exhibit was a favorable one.

It has been useful to the University in various ways, especially, perhaps, in that it has brought the University into contact with a large number of people, who were previously unacquainted with its work. The number of visitors during the summer was about 200,000. This estimation is based on actual counts taken from time to time. One day's count alone showed above 900 visitors actually in the exhibit, not counting those who merely passed by it; and on another day a count showed that over 200 persons entered in one hour the section devoted to Archæology. Among these visitors were about 2000 of the University's Alumni, and many persons from Philadelphia, the favorable impression made upon these latter being especially noteworthy. University catalogues, and a short account of the University's work in pamphlet form were widely distributed, together with many special Department circulars. There were also secured many addresses of students to whom information concerning the University courses was afterward sent.

As a result of this exhibit, and of those in the Women's Building made by Mrs. Cornelius Stevenson, and in the Anthropological building by Mr. Stewart Culin, the University has been awarded ten medals of the first class, more, I believe, than were awarded to any other institution exhibiting at the exhibition.

I have further to report that the University has secured, largely through the efforts of Mrs. Stevenson, Dr. W. P. Wilson

and Mr. Culin, with whom I have co-operated, large additions to its collections in Archæology and Anthropology. A full report cannot yet be made, but the acquisition will comprise many hundreds of rare and valuable objects. I have the honor to hand you, herewith, the report of Mr. Stewart Culin, which deals especially with these acquisitions. Dr. Wilson, while working primarily in the interest of the city of Philadelphia, has been able to add hundreds of dollars worth of objects to the University's Museums of Forestry, Botany, and Economic and Natural Products.

I am glad to say that as a result of the summer's work the University Library will be enriched by about 800 titles, chiefly in pamphlets. From the French government, besides many pamphlets, were secured eighteen large volumes of geography, archæology, architecture, and botany, with many plates. Generous gifts were also made by other foreign countries, notably Russia, Germany and Japan.

The expenses of the exhibit have been already reported to you, so far as they are complete. The total expenses will be something over \$4200, defrayed by a special fund raised by Provost Pepper—although much of this was for articles which can be used to advantage here in the University. It is interesting to note that Princeton is said to have spent about \$6000—and I am credibly informed that Harvard's exhibit cost not less than \$16,000.

In conclusion I have to say that the University's valuable show-cases, pictures and museum objects have been returned without injury, and will be in a short time re-installed in their accustomed places.

Trusting that the summer's work may meet with your approval,

I am very respectfully yours,

E. W. MUMFORD,
Assistant Secretary.

APPENDIX No. VI.

THE COMMITTEES OF THE BOARD OF TRUSTEES.

At the stated meeting of the Trustees held April 3, 1884, the statutes relating to the Standing Committees of the Board were amended with the effect of establishing the following Committees in place of those which had previously existed.

1. On Finance and Property.
2. On the Library and Museums.
3. On the College.
4. On the Department of Medicine and Allied Schools.
5. On the Department of Law, including Legal Relations.
6. On Physical Education.
7. On Religious Services.
8. On the Department of Philosophy.

The Committee on Finance and Property is elected annually at the stated meeting in January; the other Committees are appointed by the Provost; and announced at the same meeting.

The Committee on Finance and Property is divided into sub-committees on Increase of University Resources, on Investments, on Accounts and Property, and on Trust Obligations and Record of Legacies.

The Committee on the College is divided into sub-committees on Arts, on Towne School, on Wharton School, on Biological School, and on Architecture School respectively.

APPENDIX No. VII.

EXERCISES OF COMMENCEMENT WEEK, 1894.

Thursday, May 31.—8 p. m. Annual Commencement Exercises of the Zelosophic Society. College Chapel.

Friday, June 1.—8 p. m. Annual junior oratorical competition for the alumni prize. College Chapel.

Saturday, June 2.—4 p. m. Reception and tea, School of Architecture. Exhibition rooms of the school, College Hall.

This reception and tea is given by the Faculty of the School of Architecture to the students of the school and invited guests.

8 p. m. Sophomore cremation exercises. University Athletic Grounds. Admission 25 cents. Tickets can be had at the gate.

Sunday, June 3.—8 p. m. Baccalaureate sermon before the University. Preacher, Rev. Samuel D. McConnell, D. D. Association Hall, Fifteenth and Chestnut streets.

Students and Faculties of all departments, in academic cap and gown if possible, will assemble at the Y. M. C. A. rooms on second floor, at 7.45 p. m. punctually.

Monday, June 4.—10.30 a. m. Class-day exercises. Chestnut Street Opera House. Reading of class history, poem, prophecy, etc. Presentations.

2.30 p. m. Commencement athletic sports, University Athletic Association, University Athletic Grounds, Thirty-seventh and Spruce streets.

The University Track Athletic Team and noted amateur athletes from other colleges and non-collegiate organizations will compete. Tickets (price 50 cents) on sale at Spalding's on and after May 28.

8 p. m. Ivy planting exercises with oration and poem, and songs by the University Glee Club.

9 p. m. Open air concert, full military band.

9 p. m. University dance in commencement pavilion.

These last three events will take place upon the College Campus. Tickets (price \$1) admitting to all three, may be obtained from Henry Worth Thornton, Treasurer, 300 South Thirty-sixth street.

Tuesday, June 5.—10 a. m. Formation of University Procession, University Buildings, West Philadelphia.

The Governor of Pennsylvania, escorted by his staff; the Mayor of Philadelphia, escorted by the city officials; the Provost and Trustees of the University; the University Faculties and the students of all departments, both graduating classes and under class men will assemble upon the Campus at ten o'clock, will form

in procession and will proceed down Woodland avenue to Walnut street, thence east over the Walnut Street Bridge to Broad street, and thence south on Broad street to the Academy of Music.

11 a. m. Annual Commencement Exercises in the American Academy of Music. These exercises mark the one hundred and fifty-fourth (154th) year of the University's life.

The stage will be reserved for the University officials, guests of the University and distinguished alumni. The parquet and as many rows of the parquet circle as are necessary will be reserved for the graduating classes and undergraduates. Bachelors' Oration, Law Oration and Valedictory. Trustees' address to the retiring Provost with presentation of statue, by Horace Howard Furness, LL. D. Conferring of honorary degrees and degrees in course in the faculties of the college department, of philosophy and of law. Conferring of the honorary degree of doctor of laws upon the retiring Provost by the Governor of the Commonwealth.

7 p. m. Annual meeting Society of the Alumni of the College Department, University Library, followed by alumni collation in commencement pavilion.

Information in regard to collation and tickets therefor may be obtained from Mr. E. W. Mumford, College Hall.

8 p. m. Annual Commencement Exercises of the Philomathean Society, College Chapel.

Wednesday, June 6, Alumni Day.—11 a. m. General reunion of alumni of all departments, University Campus.

11.30 a. m. Presentation of statue of Benjamin Franklin from the World's Fair. Presentation oration by Russell Duane, Esq., '91, Law.

12.30 p. m. General meeting of alumni of all departments, University Library, followed by alumni collation in commencement pavilion.

Classes of any department may obtain a separate table for this collation by forwarding a request for the same, accompanied by a remittance of \$10, to E. W. Mumford, '89, College Hall, before June 2.

2 p. m. Annual reunion of the Society of the Alumni, Department of Dentistry. Colonnade Hotel.

3.30 p. m. A base-ball game will be arranged for this day and hour at the University Athletic Grounds, Thirty-seventh and Spruce streets.

Information as to tickets when the game is arranged can be obtained at Spalding's, Eleventh and Chestnut streets.

7 p. m. Annual dinner of the Society of the Alumni Department of Dentistry. Colonnade Hotel.

7.30 p. m. Commencement dinner tendered by Faculty of Dentistry to graduating class. Bullitt Building.

8 p. m. Performance of "King Arthur" by Mask and Wig Club of the University of Pennsylvania, for the benefit of the Franklin Field Fund. Chestnut Street Opera House.

It is desired to secure the attendance at this performance of as many University alumni as possible. For information apply to George Q. Horwitz, '86, 623 Walnut street, and for tickets at the Box Office of the Chestnut Street Opera House.

8.30 p. m. Banquet of Alumni Society of the Medical Department. St. George's Hall, Thirteenth and Arch streets. For information apply to Dr. R. A. Cleeman, 2135 Spruce street.

Thursday, June 7—11 a. m. Annual Commencement Exercises, American Academy of Music. Conferring of degrees in course in the faculties of the School of Medicine and allied schools.

As the faculties and students of the medical and allied schools are invited to attend the opening Commencement Exercises on June 5, so the faculties and students of other schools are invited to attend these exercises.

4 p. m. Exercises of the Phi Beta Kappa Society. Introductory address by the president, Rev. William H. Furness, D. D. Oration by Hampton L. Carson, Esq., '71. University Library, Thirty-fourth street south of Walnut.

MEMORANDA.

The Alumni are reminded that, on the afternoon of Friday, June 15, 1894, an eight-oared shell race between Pennsylvania and Cornell will be rowed down stream on a four-mile-straight-away course on the Upper Delaware, finishing opposite the Morrelton Inn, at Torresdale. The race promises to be one of the most eventful and exciting in the annals of American

sport. For information in regard to places on steamboats or grandstand, or in regard to the chartering of tugs, apply to the Rowing Committee, 701 Drexel Building.

On Thursday, June 7, in the University Library, the first announcement will be made of the awarding of the Traveling Scholarship in Architecture and of the prizes in the Students' Hall Competition. There will also be an exhibition of the drawings in both competitions in the Library.

Alumni of the College Department are notified of the publication of the great Matriculate Catalogue which contains a biographical notice of every student who has registered in this Department of the University from the earliest times to 1893. The catalogue may be obtained below cost at \$5 from John Douglass Brown, Jr., Esq., 519 Drexel Building.

The Committee in charge of the Commencement Week Exercises consists of Edward Garret McCollin, '78; John Marshall, M. D., George Q. Horwitz, '86; H. B. Robb, '86; George Wharton Pepper, '87, and E. W. Mumford, '89.

For any information not contained in the above program apply to the Chairman of the Committee, George Wharton Pepper, '87, 701 Drexel Building.

APPENDIX No. VIII.

SECTIONS 29 AND 30 OF THE STATUTES AS AMENDED APRIL 3, 1894.

SECT. 29. There shall be two public Commencements held annually for conferring Degrees: the first, for Degrees in Medicine, Dentistry and Veterinary Surgery; and the second, for Degrees in the Arts, Law, Science, Auxiliary Department of Medicine, Music, Finance and Economy, and in Philosophy, on such days in June as may be fixed by the Trustees.

At all Commencements and on other public occasions connected with the University, the Provost, Vice-Provost, professors and students, unless excused by the Provost, shall appear in college caps and gowns.

"Degrees may be conferred in Academic Council on recommendation of a faculty, or at the pleasure of the board, at such a time as may be designated in the mandamus ordering the same. Due notice shall be given to each Trustee and each member of the Council of the time and place appointed, which notice shall also specify the degrees to be given and the persons recommended for

the same ; and the ceremony of conferring the degrees shall not proceed unless at least seven members of the council are present. The rules for conferring such degrees and for the mandamus ordering the same, shall be such as are in these statutes prescribed for conferring degrees at public commencements, and announcement of all degrees conferred in Academic Council shall be made at the next succeeding public Commencement of the department in which the degree is given."

SECT. 30. Honorary degrees may be conferred on whomsoever may be deemed worthy, in the following manner : a nomination of the candidate for such a degree, with a statement of his claims to the distinction, shall be made in writing and presented to the Board of Trustees at a stated meeting. This nomination shall be referred to the standing Committee on the department to which the proposed degree pertains. The committee shall report on the nomination at the next or at a subsequent stated meeting. If a favorable report is made on the nomination, all action thereon shall lie over to another stated meeting, and thereafter the Trustees shall vote thereon ; the unanimous vote of the Trustees casting ballots shall be required for conferring an honorary degree. Degrees thus voted shall be conferred at the next Commencement of the appropriate department, or in Academic Council.

APPENDIX No. IX.

RULES ADOPTED FOR THE REGULATION OF ATHLETIC SPORTS OF THE UNIVERSITY OF PENNSYLVANIA.

RULE I. No student shall be allowed to represent the University of Pennsylvania in any public athletic contest, either individually or as a member of any team, who either before or since entering the University shall have engaged for money in any athletic competition, whether for a stake or a money prize, or a share of the entrance fees or admission money, or who shall have taught or engaged in any athletic exercise or sport as a means of livelihood, or who shall at any time have received or taken part in any athletic sport or contest for any pecuniary gain or emolument whatever, direct or indirect, with the single exception that he may have received from the college organization or from any

permanent amateur association of which he was at the time a member, the amount by which the expenses necessarily incurred by him in representing this organization in athletic contests exceeded his ordinary expenses.

RULE II.—*Section 1.* No one shall be allowed to represent the University of Pennsylvania in any public athletic contest, individually or as a member of the team, unless he is and intends to be throughout the college year a *bona fide* member of the University, taking a full year's work.

Sec. 2. A student who is dropped for neglect of his studies into a lower class, shall be debarred from taking part in intercollegiate contests until the end of the next academic year, or until he is permitted by the Faculty to rejoin his class.

Sec. 3. No student of the University who is not a student in "the college," and no student in the college who has ever played in an intercollegiate contest upon a team of any other college or university, shall play upon a University of Pennsylvania team until he has resided one academic year at the University, and passed the annual examination upon a full year's work.

RULE III. No student shall represent the University of Pennsylvania in any public athletic contest, either individually or as a member of the team, for more than four years. In reckoning the four years, the year of probation mentioned in Rule II shall be excluded, also any year lost to a student by illness.

RULE IV. No student shall be permitted to participate in any athletic contest until he shall have procured a certificate of physical fitness, issued by the director of physical culture, in conformity with the rules hereafter to be adopted by the Faculty Conference Committee.

RULE V. No student shall be permitted to play on more than one athletic team in a single college year, unless he obtains permission so to do from the Faculty Conference Committee.

RULE VI. The elections of captains of University teams shall be subject to joint ratification by the Faculty Conference Committee and the Board of Directors of the Athletic Association.

RULE VII. Each captain of a University team shall at the beginning of his season submit to the Deans of the several departments of the University, a schedule or roster of the hours of practice set for his candidates, together with a list of such candidates, and he shall notify the Deans from time to time of changes and modifications in said schedule and said list.

APPENDIX No. X.

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Spontaneous Recovery from Congenital Club-foot. Medical News. Report of Clinical Lectures, by Professor De Forest Willard. Medical News.

The Aetiology of Club-foot. Archives of Pediatrics and Gynæcology.

The Wood Bandage and Corset. Archives of Pediatrics and Gynæcology.

The Diseases of the Eye associated with Spinal Caries. Transactions American Orthopædic Association, 1890.

Report of Bilateral Lumbar Abscess, with a Case. From American Orthopædic Association, 1891.

Recovery from Hip Disease with Perfect Motion. University Medical Magazine.

Ideal Plantar Spring for Flat-foot. University Medical Magazine.

Treatment of Cervical Potts Disease. University Medical Magazine.

Tenotomy of the Peronei for Talipes Valgus. University Medical Magazine.

APPENDIX No. XI.

REPORT OF LIBRARIAN.

WILLIAM PEPPER, M. D., LL. D., PROVOST :

Dear Sir :—I have the honor to make the following report for the year ending October 1, 1893 :

During that period the General Library has received accessions numbering 2494 bound volumes and 7894 unbound volumes, pamphlets and periodicals (exclusive of periodicals regularly subscribed for out of the various funds), distributed as follows :

The Tobias Wagner Library, 371 bound volumes.

The Isaac Norris Library, 22 bound volumes.

The J. B. Lippincott Library, 247 bound volumes.

The Evans Rogers Library, 22 bound volumes.

The Henry Seybert Library of Modern Spiritualism, 144 bound volumes and 20 unbound pamphlets.

The Krauth Library of Philosophy, 25 bound volumes.

The B. B. Comegys, Jr., Library of Philosophy, 21 bound volumes.

The Psychological Library, 173 bound volumes.

The Leutsch Library, 4 bound volumes.

The William Pepper Medical Library, 44 bound and 43 unbound volumes and pamphlets.

The Wharton School of Finance and Economy, by gift of Joseph Wharton, 164 bound volumes.

Forty bound volumes were purchased out of the Library General Fund, resulting from the sale of duplicates.

The gifts to the Library were, as usual, numerous and valuable, amounting to 2217 bound volumes and 7831 unbound volume, pamphlets and periodicals.

Among these special mention may be made of some 450 volumes procured through Mr. Stewart Culin, while attending the recent international exhibition at Madrid, from the Spanish Ministerio de Fomento and several living Spanish writers. Many books were also received from Dr. Horace Howard Furness, Dr. S. Weir Mitchell, Charles Hare Hutchinson, Esq., Miss Edith Shapleigh, Joseph G. Rosengarten, Esq., Dr. Arthur V. Meigs, Dr. Marcus Jastrow, Professor Morris Jastrow, Jr., Mr. William R. Newbold, Mr. F. C. Macauley, the estate of Dillwyn Parrish, and other

sources. A library of Chinese works was presented to us by Mr. L. Dupont Syle ; and, finally, the class of 1893, of the College, continued the admirable practice of its predecessors in presenting a sum of money to be expended in the purchase of books on several subjects.

During the year department libraries were established in the College, numbering, with the books reserved for use in the Biological Laboratory, about 600 volumes.

To the George Biddle Memorial Law Library were added 727 volumes, making the total 9145 volumes at the close of the year.

The cataloguing of the Library has proceeded as usual, and since the last report 27,342 cards have been written, representing 11,495 works in 13,507 volumes.

A marked increase has been observed in the use of the Library on the part of both professors and students, as well as of persons not connected with the University, a natural result of the growing realization of the great value of the collections now contained in it.

Respectfully submitted,

GREGORY B. KEEN,
Librarian.

APPENDIX No. XII.

REPORT OF THE DEAN OF THE COLLEGE FACULTY.

TO THE Provost.

Dear Sir.—I have the honor to present my report as Dean of the College Faculty covering the period from the end of the first term of the year 1892-93, to the end of the present year in June, 1894.

The following tables show the number of students in College during that time, and their rank and distribution among the different courses :

UNIVERSITY OF PENNSYLVANIA: STUDENTS IN THE COLLEGE.

	1889-90.			1890-91.			1891-92.			1892-93.			1893-94.		
	Regular.	Special or Partial.	Total.	Regular.	Special or Partial.	Total.	Regular.	Special or Partial.	Total.	Regular.	Special or Partial.	Total.	Regular.	Special or Partial.	Total.
ARTS: *															
Freshmen,	44	4	48	24	8	32	28	1	29	31	3	34	38	4	42
Sophomores,	21	6	27	32	4	36	18	3	21	27	—	27	37	7	44
Juniors,	17	4	21	18	4	22	24	1	25	18	4	22	27	1	28
Seniors,	23	2	25	12	4	16	18	1	19	25	2	27	32	—	32
			121			106			94			110			146
SCIENCE: **															
Freshmen,	47	13	60	43	19	62	68	7	75	35	4	39	43	—	43
Sophomores,	38	20	58	33	11	44	34	8	42	55	5	60	12	1	13
			118			106			117			99			56
TECHNICAL COURSES: Freshmen.															
In Chemistry,	—	—	—	—	—	—	3	—	3	7	2	9	14	2	16
In Chemical Engineering,	—	—	—	—	—	—	—	—	—	—	—	—	4	—	4
In Civil Engineering,	—	—	—	—	—	—	—	—	—	10	1	11	13	2	15
In Mechanical Engineering,	—	—	—	—	—	—	18	4	22	24	3	27	62	—	62
In Architecture,	—	—	—	4	9	13	10	1	11	8	14	22	13	2	15
						13			36			69			112
Sophomores.															
In Chemistry,	—	—	—	—	—	—	—	—	—	7	1	8	8	7	15
In Civil Engineering,	—	—	—	—	—	—	—	—	—	2	2	4	8	2	10
In Mechanical Engineering,	—	—	—	—	—	—	1	—	1	9	1	10	10	3	13
In Architecture,	—	—	—	4	1	5	5	2	7	8	4	12	4	3	7
						5			8			34			45

* Now called Arts and Science. ** Now called Science and Technology.

UNIVERSITY OF PENNSYLVANIA: STUDENTS IN THE COLLEGE.—CONTINUED.

	1889-90.			1890-91.			1891-92.			1892-93.			1893-94.		
	Regular.	Special or Partial.	Total.	Regular.	Special or Partial.	Total.	Regular.	Special or Partial.	Total.	Regular.	Special or Partial.	Total.	Regular.	Special or Partial.	Total.
<i>Juniors.</i>															
In Chemistry,	1	3	4	1	14	15	6	17	23	5	6	11	9	8	17
In Chemical Engineering,	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
In Mining,	1	4	5	—	4	4	—	5	5	10	2	12	11	4	15
In Civil Engineering,	5	6	11	7	5	12	8	5	13	14	5	19	24	10	34
In Mechanical Engineering,	5	5	10	12	12	24	18	5	23	4	2	6	8	18	26
In Architecture,	1	2	3	3	1	4	3	3	6	—	—	—	—	—	—
			33			59			70			48			93
<i>Seniors.</i>															
In Chemistry,	5	6	11	—	4	4	2	8	10	8	12	20	4	1	5
In Mining,	—	3	3	1	2	3	1	1	2	—	—	—	—	—	—
In Civil Engineering,	4	9	13	6	7	13	11	1	12	6	4	10	7	2	9
In Mechanical Engineering,	8	1	9	4	4	8	12	7	19	15	5	20	12	2	14
In Architecture,	—	2	2	1	6	7	2	2	4	3	—	3	2	8	10
			38			35			47			53			38
<i>Post-Seniors.</i>															
In Chemistry,	3	2	5	—	5	5	—	—	—	2	5	7	3	5	8
In Mining,	—	1	1	—	—	—	1	—	1	—	—	—	—	—	—
In Civil Engineering,	4	2	6	3	2	5	3	2	5	3	2	5	3	2	5
In Mechanical Engineering,	2	—	2	7	—	7	3	1	4	9	—	9	9	3	12
In Architecture,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			14			17			10			21			25
WHARTON SCHOOL:															
Juniors,	14	13	27	12	4	16	26	15	41	11	21	32	27	17	44
Seniors,	7	3	10	9	6	15	11	1	12	23	11	34	12	14	26
			37			31			53			66			70

UNDERGRADUATE PHILOSOPHY:														
Juniors,	2	2												
Seniors,	2	2	4											
NATURAL HISTORY:														
Freshmen,	5	5		2									4	
Sophomores,				1	9									
Juniors,				2	1	3								
Seniors,				3	5									
BIOLOGY:														
First Year,	5	32	32											
Second Year,		12	12	39	39									
Third Year,				23	23									
Fourth Year,				3	3									
MUSIC:														
First Year,		3	3											
Second Year,		7	7	12	12									
Third Year,		4	4	7	7									
FELLOWS:														
	2	2	2	7	10	10	10	10	11					
SPECIAL COURSE IN ARCHITECTURAL DRAWING AND PAINTING:														
					25	25								
Total number,														
			430					565				617		689

The following table shows the number of instructors and students in each year for the last twenty years :

YEAR	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84
Instructors, . . .	31	32	34	34	33	36	30	24	56	31
Students,	215	240	236	264	279	286	296	335	356	416

YEAR	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93	93-94
Instructors, . . .	38	39	42	47	48	56	68	75	88	96
Students,	381	388	375	352	406	430	479	565	616	689

An examination of these tables shows that the growth of the College has been continuous, and divided among all departments. The number of students has doubled within the past ten years, and is now nearly four times what it was twenty years ago. The actual increase during the present year is larger than in any year in the history of the College.

Apparently it is slightly exceeded by the increase in the year 1891-92, but this is due to a change in the plan of registration.

In that year were included certain classes of special students, who attended for a limited amount of instruction, and whose connection with the College was very slight. It has now been thought best not to include these as members of the College, but to regard them as merely affiliated with the College. The class in water-color painting, registered in 1891-92, may be taken as an example, and this year there were classes—which, although not indicated above, have their places below in the list of courses given by the different instructors—in Mathematics, English Literature and American and European History of a grade which is not regarded as that of college work, and yet differs from the work in University Extension. The results obtained in these classes have been most satisfactory, and many students are materially assisted who otherwise would be unable to obtain the instruction they desire. If these students were included, the total number in the College would exceed seven hundred and fifty.

The increase in the number of students in the Arts course—which by the reorganization described below is now known as the

courses in Arts and Science, has been marked. This is in part, an increase by students drawn from without by the more attractive arrangement of the course and in common with the general growth of the College, and in part at the expense of the other existing courses. The withdrawal of the course in Natural History, has relegated the students formerly registered in that course to the courses in Arts and Science, and a considerable number of Sophomores in the course in Science—now known as the course in Science and Technology—who proposed taking the courses in Languages, Economics or pure Science in Junior year, and were therefore not seeking the technical scientific courses, changed to the Sophomore class of the new Arts course.

This shows a large decrease in the Sophomore class in the course in Science and Technology, but the Freshman class has again increased, and, as in the future, students in this course cannot change to other courses, and are regarded upon entrance as applicants for what may be termed the five-year courses in Technical Science, the loss will shortly be made up. This is the hope of all concerned in technical education, as these courses are held to be the best for that class of students.

The principal increase in the rolls has been in the four-year technical courses. Of the 313 students pursuing the courses in Architecture, Chemistry, Chemical Engineering, Civil Engineering, Mechanical Engineering and Electrical Engineering, 221 are in the four-year courses, and 92 are in the Junior, Senior and Post Senior years of the five-year courses in Chemistry, Civil Engineering and Mechanical Engineering.

The following table presents a recapitulation of the students in the technical scientific courses, for a period covered by the last five years :

RECAPITULATION.	1889-90	1890-91	1891-92	1892-93	1893-94
TECHNICAL STUDENTS :					
In Chemistry,	19	24	36	55	61
In Chemical Engineering, . .	—	—	—	—	5
In Civil Engineering,	30	30	30	39	54
In Mining,	3	3	2	—	—
In Mechanical Engineering, .	21	39	69	85	135
In Architecture,	5	30	53	58	58
Total,	78	126	190	237	313

The Junior and Senior classes in the Chemistry, Civil, and Mechanical Engineering include students taking either the four-year course or the five-year course. The division of these classes is shown in the following table :

	In Science and Technology. Five-Year Course.		In Four-Year Course.	
	Regular.	Special.	Regular.	Special.
JUNIORS :				
In Chemistry,	1	8	6	2
In Civil Engineering,	9	2	4	—
In Mechanical Engineering,	20	4	7	3
SENIORS :				
In Chemistry,	3	1	1	—
In Civil Engineering,	5	2	2	—
In Mechanical Engineering,	10	2	2	—
Total,	48	19	22	5

In the technical courses all Post Seniors (25) belong to the five-year course and all Freshmen and Sophomores (157) to the four-year course. There are no five-year courses in Architecture and Chemical Engineering.

The classes in the Wharton School, the School of Biology and the course in Music show healthy increase. This is a source of gratification, as much more care has been bestowed upon the admission of candidates to these courses and the standard of work has been advanced.

With the growth of the College as a whole there has been a steady growth in the number of students who come to us from places other than Philadelphia and its suburbs. In 1889-90 these students were 21 per cent of the entire student body; in 1890, 23 per cent; in 1891, 27 per cent; in 1892, 30 per cent, and in 1893, over 33 per cent.

The whole number of students admitted to the College this year was 298. Of these, 197 are upon the Freshman rolls, the remaining were admitted to advanced standing and take special courses in Biology and Music.

The following table shows the growth of the Freshman class during the past four years:

	1889-90	1890-91	1891-92	1892-93	1893-94
FRESHMEN: (Including Partial Students working with Freshmen class, but excluding Special Students in Biology, Archi- tecture and Music.)	113	109	140	146	197

The following tables show the courses of instruction given during the present year with the number of students attending each course. They may be compared with the tables presented in the report for 1889. The departments are denoted by the following symbols:

Arts and Science, A; Science and Technology, Sc. for the lower classes, and Sc. 1, 2, 3, 4 in the upper classes for Chemistry, Mining, Civil and Mechanical Engineering respectively; the four-year courses Mechanical Engineering, M. E.; Electrical Engineering, E. E.; Chemistry, Ch.; Chemical Engineering,

Ch. E.; Civil Engineering, C. E.; Architecture, Arch.; Wharton School, Wh.; Biology, B.; Music, M.; Special Course in Architecture, Sp. Arch.; Course in Interior Architecture, Int. Arch. The numbers of the classes precede the symbols for the departments, and are: Freshmen, 4; Sophomores, 3; Juniors, 2; Seniors, 1. Courses open to all students, under restrictions, are not given a class number. The elective courses are in italics.

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTOR.
		Term 1.	Term 2.		
	SANSKRIT.				
1, 2 A. 1 A.	1. Whitney's <i>Sanskrit Grammar</i> . Tarman's <i>Reader</i> , . . . 2. Tarman's <i>Reader</i> . Selected Hymns from the Veda, . . .	2 2	2 2	3 omitted	Prof. Easton. "
2 A.	HEBREW.				
1 A. 1 A.	1. Hebrew Grammar (Strack's). Translating from Hebrew into English and <i>vice versa</i> . Six or eight chapters of Genesis. Translation at sight, 2. Review of grammar. Selections from historical and poetical books, 3. Review of grammar. Reading at sight. Translation, . . .	2 2 1	2 2 1	8 5 5	Prof. Jastrow. Prof. Hilprecht. Mr. Clay.
4 A. 3 A. 2 A. 1 A. 1 A. 1 A. 2 A.	GREEK. 1. Xenophon's <i>Economics</i> . Greek composition, Lysias. Plato's <i>Apology</i> , Greek composition, 2. Xenophon's <i>Hiero</i> . Euripides' <i>Medea</i> , Plato's <i>Laches</i> . Andocides' <i>de Mysteriis</i> . Greek composition, 3. Euripides' <i>Iphigenia in Tauris</i> . Plato's <i>Ucno</i> . Jevon's Greek Literature. Private reading. Sophocles' <i>Philoctetes</i> . Euripides' <i>Baccha</i> , Plato's <i>Protagoras</i> , 4. Aristophanes' <i>Clouds</i> , 4. Homer's <i>Iliad</i> . Jevon's Greek literature. Private reading. <i>Odyssey</i> , A. Demosthenes' Oration on the <i>Crown</i> (voluntary),	1 1, 2 II, 2 1 2 3 1 — 2 1	1 1, 2 II, 2 1 2 3 — 2 1 2 1	24 24 17 17 10 10 10 17 4	Prof. Lamberton. Mr. Burke. Prof. Lamberton. Mr. Burke. Prof. Lamberton. Prof. Gudeman. " Prof. Lamberton. "

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
	LATIN.				
4 A.	1. SELECTIONS FROM LIVY AND HORACE (<i>Satires</i>),	3	3	36	Prof. Jackson.
3 A.	3. TACITUS (<i>Agricola</i> , <i>Germania</i> , or <i>Annals</i>). CICERO (<i>De Senectute</i> or <i>De Officiis</i>). HORACE (Selected <i>Odes</i>), . . .	3	3	19	"
2 A.	5. SELECTIONS FROM JUVENAL. CICERO (<i>De Officiis</i> , <i>De Finibus</i> , or <i>De Amicitia</i>). HORACE (<i>Epistles</i>). Reading at sight,	3	3	15	"
1 A.	6. CICERO (<i>Tusculanae</i>) or LUCRETIUS (<i>Selections</i>). HORACE (<i>Ars Poetica</i>). Reading at sight,	3	3	7	"
2 A.	9. Quintilian Book X,	1	—	13	Prof. Gudeman.
2 A.	10. PLAUTUS' <i>Trinummus</i> ,	—	1	13	"
	ENGLISH COMPOSITION AND DECLAMATION.				
4.	1. Composition work based on a study of American prose authors (Franklin, Irving, Hawthorne, Poe). Genung's <i>Outlines of Rhetoric</i> ,	2	2	160	Mr. Penniman.
3.	2. COMPOSITION.—The preparation of one composition a week on subjects chosen to illustrate the various modes of rhetorical expression,	1	1	78	Mr. Smith.
2.	3. Weekly exercises in popular and literary subjects assigned by the instructor,	1	1	24	"
1.	6. Weekly exercises in composition,	1	1	omitted	Mr. Penniman.
3.	8. DECLAMATION.—The preparation by each student of two or more declamations per term,	—	—	78	Mr. Smith.
1, 2.	9. DECLAMATION.—Special training in the writing of orations, in debating, and in speaking, extemporaneous and prepared,	—	—	omitted	"
	15. Reading. Declamation and debating,	—	—	40	"
3.	1. MODERN ESSAYISTS,	2	—	57	} Prof. Schelling. } Mr. Smith.

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term			
		1.	2.		
	FRENCH.				
1 A.	1. Molière, <i>Le Médecin malgré lui</i> ; <i>Le Malade imaginaire</i> . Racine, <i>Esther</i> . Corneille, <i>Le Cid</i> . Koschwitz, <i>Les Parlers Parisiens</i> . Juval, <i>Histoire de la littérature française</i> . The French Dramatic writers of the Seventeenth Century, with especial reference to the influence of the Spanish Drama. Principal laws governing the changes in the forms of the Latin in the transition into French. Advanced Grammar and Prose Composition, Victor Hugo, <i>Hernani</i> . Corneille, <i>Le Cid</i> . Koschwitz, <i>Les Parlers Parisiens</i> .	2 1	2 1	14	Prof. Rennert. Mr. Lorenz.
2 Sc.	2. Souvestre, <i>Un Philosophe sous les toits</i> . Koschwitz, <i>Les Parlers Parisiens</i> . French Grammar and exercises in translation into French, Merimée, <i>Colomba</i> . Sand, <i>La Mare au Diable</i> . Halévy, <i>L'Abbé Constantin</i> . Exercises in translating. Review of Grammar. Elementary French Grammar, with exercises in translation from English into French, easy prose is read, beginning with Super's <i>French Reader</i> , French conversation and prose composition,	2 2	2 2	11	Prof. Rennert. "
3 Arch. 3 Sc. 3 M. E. 3 C. E. 4 Sc.	3. A course for beginners. Elementary French Grammar, with exercises in translation from English into French, easy prose is read, beginning with Super's <i>French Reader</i> , French conversation and prose composition,	2 1 1 4	2 1 1 4	27 55	Mr. Lorenz. Prof. Rennert. Mr. Lorenz.
	4. Toybee, <i>Specimens of Old French</i> , 5. <i>Oedavian</i> . (Vollmöller's Edition.)	2 2 1	2 2 1	17 6	Prof. Rennert. Mr. Lorenz. "
1, 2 A. 1, 2 A.	OLD FRENCH.	2 2	2 2	4 omitted	Prof. Rennert. "

OLD PROVENÇAL.

1, 2 A.	1. Lectures on the Grammar. Bartsch's <i>Chrestomathie Provençale</i> . The <i>Poème sur Boece</i> , the prose extracts, and selections from the following Troubadours will be read: Cercalmon, Marcabrun, Jaufré Rudel, Guillem de Cabestaing, Peire Rogier, Alphonse II., Roi d'Aragon, Arnaut de Maroill, Peire Vidal, Giraut de Salinhac, Giraut Riquier, Roman de Jaufré, Peire de Corbiac, Peirol, Daude de Pradas,	1	1	3	Prof. Rennert.
1, 2 A.	ITALIAN. 1. Dante, <i>Selections from the Inferno</i> ; Tasso, <i>La Gerusalemme Liberata</i> . Cantos 1 and 2. Lectures on the Literature. (Snell's <i>Primer of Italian Literature</i> as a basis).	2	2	6	"
1, 2 A.	SPANISH. Elementary Grammar, Knapp's <i>Spanish Readings</i> . Calderon, <i>El Principe Constante</i> . Lectures on the Spanish Drama,	2	2	6	"
1 A.	GERMAN. 1. Platen's <i>Abssiden</i> ; Goethe's <i>Egmont</i> ; Schiller's <i>Ge-dichte</i> ; Jagemann's <i>Materials for German Composition</i> ; History of German Literature,	3	3	8	{ Prof. Seidensticker. { Prof. Gudeman.
2 Sc.	2. Gore's <i>German Science Reader</i> ; Helmholtz's <i>Goethe's Wissenschaftliche Arbeiten</i> ; Freytag's <i>Journalisten</i> ,	2	2	21	{ Prof. Seidensticker. { Prof. Gudeman.
2 A.	8. Whitney's <i>Brief German Grammar</i> ; Niebuhr's <i>Herengeschichten</i> ; Koerner's <i>Triny</i> ; Stein's <i>German Exercises</i> ,	4	4	6	Mr. Wesselhoeft.
3 Sc.	3. Cohn's <i>Bakterien</i> ; Virchow's <i>Nahrungs- und Genußmittel</i> ; Heine's <i>Prose</i> ; Harris' <i>German Composition</i> ,	2	6	30	{ Prof. Seidensticker. { Prof. Rennert. { Mr. Wesselhoeft.

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
4 Sc.	6. Collar-Eysenbach's <i>German Grammar</i> ; Hauff's <i>Das Kalle Herz</i> ; Auerbach's <i>Brigitte</i> ; Heyse's <i>L'Arrabata</i> ,	5	5	33	Mr. Wesselhoef.
4 M. E. 4 C. E. 4 Ch. E. 4 B. I.	7. The same, without Hauff's <i>Das Kalle Herz</i> ,	3	3	40	"
B. 2.	9. Joynea-Meisner's <i>German Grammar</i> ; Brandt's <i>German Reader</i> . Three hours,	3	3	12	"
I A.	10. Grammar and exercises continued. Hodges' <i>Course of Scientific German</i> ; Cohn's <i>Bakterien</i> ,	2	2	8	"
I, 2 A.	4. Gothic Grammar and Ulfilas,	2	2	omitted	Prof. Seidensticker.
	5. Difficulties and mooted points of German Grammar,	1	1	omitted	
	PHILOSOPHY.				
2 A. 2 Wh. 2 Sc.	1. LOGIC.—Lectures and recitations, covering in outline the Inductive and Deductive Logic. Jevons' <i>Lessons in Logic</i> is the textbook used,	2	—	96	Prof. Fullerton.
2 A. 2 Wh. 2 Ch. 2 Sc.	2. ETHICS.—Lectures and recitations. The course is critical and constructive,	—	2	88	"
2 A.	6. HISTORY OF ETHICAL THEORIES. (Ancient and Medieval.)	1	—	4	Dr. Newbold.
2 A.	7. HISTORY OF ETHICAL THEORIES. (Modern.)	—	1	4	"
I A.	3. HISTORY OF PHILOSOPHY.—Lectures with use of Schwegler's Outline,	2	—	21	Prof. Fullerton.
I A.	4. THE DEVELOPMENT OF IDEALISM.—Lectures and recitations,	—	2	27	"
	5. THE PHILOSOPHICAL CLUB.—Open to Seniors of all departments. Meets once in a fortnight, in the evening, for discussions on special topics in Philosophy and Psychology,	—	—	20	"

PSYCHOLOGY.

1 A. 2 A.	1. GENERAL PSYCHOLOGY.—James' <i>Outlines of Psychology</i> ,	1	—	28	Dr. Newbold.
	2. GENERAL PSYCHOLOGY,	—	1	28	"
	3. EXPERIMENTAL PSYCHOLOGY.—The Physiology of the Nervous System, and Sensation,	2	—	5	Dr. Witmer.
	4. EXPERIMENTAL PSYCHOLOGY.—The Psychology of Perception,	—	2	5	"
AMERICAN HISTORY AND GOVERNMENT.					
4 2 Wh. 2 A. 2 A.	7. GOVERNMENT IN THE UNITED STATES, (a) the States, (b) the Nation (1776-1892),	2	2	81	Prof. Thorpe.
	1. POLITICAL HISTORY OF THE UNITED STATES (1765-1892),	2	2	37	Prof. McMaster.
	3. UNITED STATES IN THE 19TH CENTURY,	2	—	4	"
	4. HISTORY OF OUR OWN TIME,	—	2	4	"
2 A. H. 2 A.	5. AMERICAN POLITICAL ORATIONS,	—	2	4	"
	14. GOVERNMENT IN AMERICA.—Constitutional History of America, 1492-1787,	2	2	omitted	Prof. Thorpe.
	2. ECONOMIC AND FINANCIAL HISTORY OF THE UNITED STATES,	2	2	20	Prof. McMaster.
	6. POLITICAL HISTORY OF THE UNITED STATES SINCE THE CIVIL WAR.—The legislative action of Congress since 1861,	2	—	20	"
1 A. H. 1 Wh.	12. POLITICAL AND ECONOMIC HISTORY OF THE UNITED STATES. Special Class,	2	2	36	"
	11. CONSTITUTIONAL HISTORY.—The Constitution of the United States, origin, formation, interpretation and administration,	—	2	5	Prof. Thorpe.
	13. DEVELOPMENT OF GOVERNMENT IN AMERICA.—Local Government, State Government, National Government. Discussion of questions involved in the growth of American civil institutions,	1	1	27	"

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
I A. H.	8. THE CONSTITUTIONAL HISTORY OF THE UNITED STATES.— (a) The Principles of American Government, Local, State and National, 1578-1892. (b) The Colonial Charters, 1606-1776. (c) The State Constitutions and State Governments, 1776-1892.	2	2	omitted	Prof. Thorpe.
I Wh. I A. H.	10. CONSTITUTIONAL HISTORY.—(a) <i>The Government of Pennsylvania</i> , 1682-1892. Charter, Constitutions, 1776, 1790, 1834. 1873. (b) <i>The Government of Massachusetts</i> , 1620-1892. Charter, Constitution, 1780. (c) <i>The Government of Virginia</i> , 1606-1892. Charters, Constitutions, 1776, 1830, 1850, 1864, 1868-1870. (d) <i>The Constitution of the States of the Northwest</i> . (e) <i>The Government of American Cities</i> . History,	2	2	21	"
4	EUROPEAN HISTORY.				
3 Sc. 3 A.	1. ENGLISH HISTORY.—To the close of Stuart Period. Gardiner's <i>Student's History of England</i> , Vols. I and II, are used as a textbook, with prepared papers and required readings,	3	—	40	Prof. Cheyney.
	5. THE HISTORY OF EUROPE FROM 1789 TO 1815,	3	—	22	Prof. Robinson.
	6. RECENT EUROPEAN HISTORY SINCE 1815.—The successive changes in France, and the unification of Germany and of Italy,	—	3	22	"
3 A.	9. ROMAN HISTORY.—The Roman Empire from the death of Sulla, 78 B. C., to the deposition of Romulus Augustulus, 476 A. D. The extension and influence of Christianity,	3	3	16	Mr. Munro.
2 Wh. 1, 2 A. Sc.	2. ENGLISH CONSTITUTIONAL HISTORY.—The Social and Political Condition of England in the Early Middle Ages, and the Constitutional Development since,	2	2	18	Prof. Cheyney.

1, 2 A.	3. ENGLISH ECONOMIC HISTORY.—The systems of land-holding and industry in early England, and the economic changes and social development since,	2	2	8	Prof. Cheyney
1, 2 A.	10. MEDIEVAL HISTORY.—The great founders among the new races, Theodoric, Clovis, Charlemagne. The age of the Crusades,	2	2	10	Mr. Munro.
1 Wh.	7. THE RENAISSANCE AND REFORMATION.—The beginnings of the modern spirit in Italy and Germany, illustrated by the progress of Literature and Art during the fourteenth and fifteenth centuries. The history of the Papacy from the opening of the Conciliar period to indicate the earlier stages of the Reformation, and the progress of the Renaissance. The history of the period of Charles V., and of the Thirty Years' War,	2	2	20	Prof. Robinson.
PUBLIC LAW AND POLITICS.					
2 Wh.	1. CONSTITUTION OF THE UNITED STATES.—A study of the text of the Constitution, using as a textbook Cooley's <i>Elements of Constitutional Law</i> ,	2	—	37	
2 Wh.	4. CONSTITUTIONS OF LEADING FOREIGN COUNTRIES.—A study of the text of the German Federal Constitution in comparison with those of the United States and Switzerland,	—	2	37	Prof. James.
2 Wh.	3. HISTORY AND THEORY OF THE STATE.—A study of the elements of political science. Wilson's <i>The State</i> ,	2	2	37	Dr. Adams.
1 Wh.	5. PUBLIC ADMINISTRATION IN THE UNITED STATES.—Federal, State and Local Administration in the United States,	2	—	20	Prof. James.
1 Wh.	6. PUBLIC ADMINISTRATION IN LEADING FOREIGN COUNTRIES.—The characteristic features of governmental administration in England, France and Germany,	—	2	20	"
1, 2 Wh.	8. STUDY OF MUNICIPAL PROBLEMS.—Wharton School City Councils. Committee Work on Gas, Water, Railroads, Education, Tax Rate, Finance, Rapid Transit, etc.,	1	1	57	{ Prof. Falkner. Dr. Adams.

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
1, 2 Wh.	10. PUBLIC LECTURES.—By well-known men, on practical subjects, dealing especially with Municipal Administration, Journalism and Banking,	—	—	57	{ Prof. Falkner. Dr. Adams. Dr. Lewis. Dr. Rowe.
1 Wh.	12. LEGAL INSTITUTIONS.—Lectures,	2	2	20	
1 Wh.	13. Ten Lectures on Municipal Government,	—	—	—	
	BUSINESS LAW AND PRACTICE.				
2 Wh.	1. METHODS OF ACCOUNTING,	2	2	37	Prof. Falkner.
2 Wh.	3. MERCANTILE PRACTICE.—Modern business methods, corporations, trusts, panics and stock and produce exchanges,	2	2	37	Prof. Johnson.
1 Wh.	4. MERCANTILE PRACTICE.—History and Development of Corporations and Trusts; Railway and Corporation Finance,	2	2	20	"
1 Wh.	2. MERCANTILE LAW,	—	2	20	Prof. Falkner.
Post Sc. 1 M. E. 1 C. E.	4. BUSINESS LAW AND CONTRACTS, with especial reference to Engineering Contracts,	1	1	22	Mr. Wintersteen.
	ECONOMICS AND SOCIAL SCIENCE.				
2 Wh.	1. POLITICAL ECONOMY.—Walker's <i>Political Economy</i> , and Adam Smith's <i>Wealth of Nations</i> ,	2	2	37	Prof. Patten.
2 Wh.	13. GEOGRAPHY AND HISTORY OF COMMERCE,	1	1	37	Prof. Falkner.
2 Wh.	12. LECTURES ON FINANCE.—Banks of the United States. Ten Lectures,	—	—	37	Dr. Bollea.
2 Wh.	14. LECTURES ON FINANCE.—General Theory of Banking. Ten Lectures,	—	—	37	Dr. Adams.
1 Wh.	5. POLITICAL ECONOMY.—Mill's <i>Political Economy</i> ,	—	—	20	Prof. Patten.
1 Wh.	6. POLITICAL ECONOMY.—Ingram's <i>History of Political Economy</i> and Patten's <i>Dynamic Economics</i> ,	2	2	20	"

1 Wh.	9. STATISTICS.—Lectures and investigation,	2	—	—	20	Prof. Falkner.
1 Wh.	15. LECTURES ON TRANSPORTATION.—Railroads, Waterways,	—	1	—	20	Dr. E. R. Johnson.
1 Wh.	7. FINANCE.—Bastable's work on <i>Public Finance</i> , supplemented by lectures,	2	2	—	20	Dr. Adams.
	11. LECTURES ON FINANCE.—The Money Market, Bonds, Mortgages, Investments, Panics, Corporations, etc. Ten Lectures,	—	—	—	—	Mr. Chandler.
	JOURNALISM.					
	1. ART AND HISTORY OF NEWSPAPER-MAKING,	1	1	—	16	Prof. Johnson.
	2. NEWSPAPER-MAKING.—Law of libel; business management; typographical unions; cost and revenue; advertising; method of criticism, etc.,	1	1	omitted		"
	3. NEWSPAPER PRACTICE.—Exercises in reporting; editing of copy; condensation, etc.,	3	—	—	16	"
	4. CURRENT TOPICS.—Lectures on live issues in the United States and foreign countries. Professor JOHNSON will be assisted in this course by other instructors.	—	3	—	16	"
	PUBLIC LECTURES by men engaged in the active work of the profession.					

NOTE.—All the Courses in Journalism are open as voluntaries to all Juniors and Seniors in the College.

MATHEMATICS.

4 A. 4 Arch. 4 Ch.	1. ALGEBRA.—C. Smith's <i>Treatise on Algebra</i> . Third edition. The Theory of Exponents and Logarithms, Permutations, Combinations and Simple Probability, Continued Fractions, Series, Undetermined Co-efficients, Interpolation, the elements of the Theory of Equations and Determinants,	I. 2 II. 2 III. 2	— — —	— — —	14 48	Prof. Kendall. } Dr. Schwatt.
4 M. E. 4 C. E.	2. ALGEBRA.—C. Smith's <i>Treaties on Algebra</i> . Third edition. This course differs from Course 1, chiefly in the amount and nature of the work in the same topics, . .	— — —	I. 4 II. 4 III. 4	I. 4 II. 4 III. 4	48 68 14	Prof. Fisher. Dr. Schwatt. Prof. Kendall.

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term I.	Term 2.		
4 A. 4 Arch. 4 Ch. 4 Ch.	3. SOLID GEOMETRY.—Chauvenet's <i>Geometry</i> (Byerly's edition), 5. TRIGONOMETRY.—Crawley's <i>Elements of Trigonometry</i> . Prescribed for Freshmen in Arts and Science, Architecture and Chemistry. Two hours. Two sections of the Class meet Dr. SCHWARTZ. (<i>Second part of First Term, and Second Term</i>),	II. 2 III. 2	II. 2 III. 2	48	} Dr. Schwatt.
4 Sc.	6. PLANE AND SPHERICAL TRIGONOMETRY.—Crawley's <i>Elements of Trigonometry</i> and Newcomb's <i>Tables of Logarithms</i> . The derivation and application of the ordinary trigonometric formulæ, the solution of Plane and Spherical Triangles, together with some introduction to Trigonometric Analysis,	— — —	I. 2 II. 2 III. 2	14 48	Prof. Kendall. } Dr. Schwatt.
4 M. E. 4 C. E. 4 Ch. E. 4	8. PLANE AND SPHERICAL TRIGONOMETRY.—Crawley's <i>Elements of Trigonometry</i> and Newcomb's <i>Tables of Logarithms</i> . This course is more advanced than 6. 7. SPECIAL WORK IN GEOMETRY, ALGEBRA AND TRIGONOMETRY,	— 4 4	4 — —	20 48 30	Asst. Prof. Crawley. " Asst. Prof. Fisher.
3 A. 3 Arch. 3 Sc.	10. ANALYTIC GEOMETRY.—Nichol's <i>Analytic Geometry</i> , 11a. ANALYTIC GEOMETRY.—Nichol's <i>Analytic Geometry</i> . The fundamental properties of the straight line, Circle, Parabola, Ellipse and Hyperbola, including the chapter on the general equation of the second degree,	1 3 4	1 3 —	omitted 22 7	Asst. Prof. Crawley. Prof. Kendall. "
3 Sc. 3 M. E. 3 C. E.	15. DIFFERENTIAL AND INTEGRAL CALCULUS.—Rice and Johnson's <i>Differential and Integral Calculus</i> (abridged). This course covers the methods of differentiation and Integration with some few applications,	— — —	4 4 4	7 27	" Asst. Prof. Crawley.

3 M. E. 3 C. E.	{	11. ANALYTIC GEOMETRY.—C. Smith's <i>Conic Sections</i> . The fundamental properties of the straight line, Circle, Parabola, Ellipse and Hyperbola, including the chapter on the general equation of the second degree,	4	—	27	Ast. Prof. Fisher.
		16. DIFFERENTIAL AND INTEGRAL CALCULUS.—Rice and Johnson's <i>Differential and Integral Calculus</i> (abridged). A continuation of the preceding course,	3	3	45	Ast. Prof. Crawley.
2 M. E. 2 C. E.	{	15a. CALCULUS.—The Elements of the Differential and Integral Calculus,	2	2	omitted	Ast. Prof. Fisher.
2 A.		12. ANALYTICAL GEOMETRY OF THREE DIMENSIONS.—Smith's <i>Solid Geometry</i> ,	—	2	3	Ast. Prof. Crawley.
		13. ADVANCED ANALYTIC GEOMETRY of two and three Dimensions,	2	2	omitted	Ast. Prof. Fisher.
1, 2 A.		17. CALCULUS.—Advanced work in Differential and Integral Calculus,	—	—	—	"
1 Sc. 1, 3. 2 A.	{	18. CALCULUS.—Advanced work in Integral Calculus. Williamson, and lectures with references to Bertrand,	2	2	omitted	Prof. Kendall.
		19. ASTRONOMY.—Young's <i>Astronomy</i> ,	2	2	15	
2 A.		20. QUATERNIONS.—Lectures. For the Faculty prize in Mathematics, to members of the Junior Class,	1	1	3	Ast. Prof. Fisher.
1, 2.		21. DETERMINANTS.—Weld's <i>Theory of Determinants</i> ,	2	—	5	Ast. Prof. Crawley.
		22. THEORY OF EQUATIONS.—Burnside and Panton's <i>Theory of Equations</i> , including Determinants,	2	2	omitted	Ast. Prof. Fisher.
		23. DIFFERENTIAL EQUATIONS.—Forsythe and lectures,	2	2	omitted	"
		24. PROJECTIVE GEOMETRY.—Cremona's <i>Elements of Projective Geometry</i> , with supplementary lectures,	2	2	omitted	"
1, 2.		25. METHODS OF CURVE TRACING, with some introduction to the THEORY OF HIGHER PLANE CURVES,	1	1	omitted	Ast. Prof. Crawley.
		27. A Course for Special Students, in preparation for work in the Department of Philosophy. Advanced course in Analytic Geometry,	2	2	6	"
		28. MODERN GEOMETRY.—Lectures on Brocard's and Grebe's theories of the plane triangle; followed by applications of the same to conic sections,	2	2	12	Dr. Schwatt.

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
	CHEMISTRY.				
4 Ch. 4 Ch. E. 4 M. E. 4 C. E. 4 Arch. 3 Sc.	1. GENERAL INORGANIC CHEMISTRY. —The Freshman Class of the four-year course in Chemistry devote six hours per week to the experimental portion of this course; the Freshmen in Chemical Engineering, eight hours per week. Both classes recite twice per week. The Freshmen in Mechanical Engineering, Civil Engineering and Architecture, as well as the Sophomores in Arts and Science and in Science and Technology, devote three hours per week to this course. They all recite one hour per week.	10-4	10-4	191	Prof. Smith and Assistants.
2 Sc. 1. 3 Ch. 3 Ch. E. 2, 3 C. E. 3 M. E. 2 B.	2. ANALYTICAL CHEMISTRY. —Qualitative Analysis. Laboratory practice with recitations. Preparation of a series of inorganic salts. The Juniors in Science and Technology in this subject; the Sophomores of the four-year course in Chemistry, from eighteen to twenty hours; the Sophomores in Chemical Engineering, twelve hours; the Juniors in Metallurgy and Mining, six hours; Juniors and Sophomores in Civil Engineering (four-year course), four hours; Sophomores in Mechanical Engineering (four-year course) three hours (<i>First Term</i>); and the second-year Biological Class, six hours.	20-3	20-4	—	"
1 Sc. 1. 1 Sc. 2. 2 Ch. 2 Ch. E. 3 M. E.	3. ANALYTICAL CHEMISTRY. — <i>Quantitative Analysis.</i> Practice in both gravimetric and volumetric analysis, with careful drill in mineral analysis. Seniors in Chemistry take six hours in this course; Seniors in Metallurgy and Mining, four hours; Juniors in four-year Chemical course, twelve hours; Juniors in Chemical Engineering, twelve hours; and Sophomores in four-year Mechanical Engineering course, three hours (<i>for Second Term</i>).	12-4	12-3	19	"

2 Sc. I. 2 Ch. 2 Ch. E.	4. ORGANIC CHEMISTRY.—The instruction is by recitation and lectures. Prescribed for Juniors in Science and Technology in the Chemical Section, Juniors in the four-year course in Chemistry, and Juniors in Chemical Engineering, two hours,	2	2	9	Prof. Smith and Assistants.
1 Sc. I. 2 Ch.	5. ORGANIC CHEMISTRY.—The Preparation of a series of typical organic compounds. It supplements Course 4, and is required of Seniors in Science and Technology in the Chemical Section, six hours, and Juniors in four-year course in Chemistry, twelve hours. One hour per week is devoted to a lecture or recitation on this subject, both to inorganic and organic Chemistry, supplemented by regular and frequent excursions to works in and out of the city. This course is required of Seniors in Science and Technology in the Chemical Section, Seniors in Chemical Engineering, and Juniors in the four-year course in Chemistry. This regular work in College is supplemented by a course of lectures occupying one hour per week, delivered by graduates,	12-6	12-6	12	
1 Sc. I. 1 Ch. E. 2 Ch.	6. APPLIED CHEMISTRY.—Lectures upon subjects pertaining to both to inorganic and organic Chemistry, supplemented by regular and frequent excursions to works in and out of the city. This course is required of Seniors in Science and Technology in the Chemical Section, Seniors in Chemical Engineering, and Juniors in the four-year course in Chemistry. This regular work in College is supplemented by a course of lectures occupying one hour per week, delivered by graduates,	—	—	13	
Post Ch. 1 Ch.	7. INDUSTRIAL CHEMISTRY.—The execution of experimental studies in both applied inorganic and organic Chemistry,	10	10	5	"
Post Ch. 1 Ch. 1 Ch. E.	8. SEMINAR.—Reading of journals, papers on special topics in Chemistry. Lectures delivered by advanced students,	1	1	10	"
	9. CHEMICAL THEORY.—Lectures and recitations,	1	1	8	"
	10. ADVANCED ANALYTICAL CHEMISTRY.—This includes the discussion of electrolytic methods, gas analysis, and special topics in this field of Chemistry,	1	1	6	"
4 Ch. 3 Sc. 4 Ch. E. 4 M. E. 4 C. E.	PHYSICS. 2. ELEMENTARY PRACTICAL PHYSICS,	4	4	38	Ast. Prof. Goodspeed. Dr. Richards.
	3. MASS-PHYSICS, ENERGY,	2	—	91	"

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	Instructors.
		Term I.	Term 2.		
3 Sc. 4 Ch. E. 4 M. E. 4 C. E.	4. SOUND AND HEAT,	—	2	77	Ast. Prof. Goodspeed. Dr. Richards.
3 A. 3 Arch.	I. ELEMENTARY PRACTICAL PHYSICS,	3	3	4	"
2 Sc. 3 Ch. E. 3 M. E. 3 C. E.	5. RADIATION (including LIGHT) AND MAGNETISM,	3	—	57	Prof. Barker. Ast. Prof. Goodspeed.
2 Sc. 3 Ch. E. 3 M. E. 3 C. E.	6. ELECTRICITY,	—	3	57	"
1 Sc. 2 Ch. E. 2 M. E. 2 C. E.	8. PHYSICAL MEASUREMENTS.—Dynamical, Thermal and Optical measurements,	6-3	—	40	Prof. Barker. Ast. Prof. Goodspeed.
1 Sc. 2 Ch. E. 2 M. E. 2 C. E.	9. PHYSICAL MEASUREMENTS.—Electrical measurements,	—	6-3	39	Dr. Richards.
1 Sc. 2 Ch. E. 2 M. E. 2 C. E.	7. PHYSICAL MEASUREMENTS.—Theory and methods of measurement,	3	3	40	Prof. Barker.
	SANITARY SCIENCE.				
2 Arch. 1 Sp. Arch.	I. SANITARY SCIENCE.—Lectures on Heating and Ventilation in their relation to architectural practice. Illustrated by models and drawings,	—	1	30	Dr. Abbott.

1 Arch. 2 Sp. Arch.	2. SANITARY SCIENCE.—Lectures on Plumbing and Drainage in their relation to architectural practice. Illustrated by models and drawings,	1	—	30	Dr. Abbott.
	METALLURGY.				
1 Sc.	1. THEORY of Metallurgical processes, and of the dressing and mechanical treatment of ores,	1	1	48	Dr. Brown.
	2. ASSAYING,	4	4	18	"
Post Sc. 2.	3. DEMONSTRATIONS of the principal metallurgical processes by furnace,	2	2	omitted	"
Post Sc. 2.	4. LECTURES on the production of pig, weld, and temper iron, and of silver, copper and lead. The class also makes visits to metallurgical works in the city and State, . . .	2	2	omitted	"
	MINERALOGY.				
2 Sc. 1, 2, 3.	1. MINERALOGY BEGUN.—Crystallography, native elements, sulphides, chlorides, fluorides and oxides,	2	2	28	"
1 Sc. 1, 2.	2. MINERALOGY.—Sulphates, phosphates, etc. Carbonates and silicates,	2	2	13	"
	3. DETERMINATIVE MINERALOGY,	2	2	16	"
1 Sc. 1, 2, 3.	4. PHYSICAL MINERALOGY.—Determination of minerals by physical properties, use of contact and reflecting goniometer, polariscope, stauroscope, refractometer, etc., . .	1	1	8	"
Post Sc. 3. 1 C. E.	5. MINERALOGY, BRIEFER COURSE.—This course embraces the salient points of Courses 1 and 2, but only such minerals as are of economic importance are considered, . .	2	2	omitted	"
	MINING.				
1, 2 Sc. 2.	1. MINING ENGINEERING.—Construction of parts of mines and mining machinery, from notes and sketches,	5	5	omitted	"
2 Sc. 2.	2. MINING ENGINEERING.—Lectures on the methods used in prospecting for and developing ore and coal deposits, . .	2	2	2	"

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
Post Sc. 2.	3. MINING ENGINEERING.—Lectures on the ventilation and drainage of mines. Special mining problems in faulted strata, more especially in coal mining. Excursions for two weeks to the Anthracite Coal Regions, to make underground surveys, and to learn how to examine a mine and report its condition,	2	2	omitted	Dr. Brown.
1 Sc. 2.	4. MINING ENGINEERING.—Lectures on the principles involved and the machinery employed in haulage, hoisting and pumping in mines,	2	2	omitted	"
2 Sc. 2.	GEOLOGY. 1. LITHOLOGY.—Prescribed for Juniors in Metallurgy and Mining,	1	1	omitted	"
Post Sc. 1, 2, 3.	3. STRATIGRAPHY of the rock systems in connection with Palæontology, Laws of Dynamite Geology, Structural Geology of North America, with reference to that of Europe, with the principal minerals and fossils and distribution of metals and fuels,	2	2	21	"
1 B.	BIOLOGY. zoöLOGY. 3. SYSTEMATIC STUDY OF THE INVERTEBRATES.—Laboratory work, with explanatory Lectures,	6	—	33	{ Prof. Ryder. { Mr. Calvert.
1 B.	8. MAMMALIAN ANATOMY.—Lectures and Laboratory work,	6	6	37	{ Prof. Jayne. { Dr. Burk.
2 B.	24. HUMAN ANATOMY.—Laboratory exercises. Six hours, . .	6	6	8	Dr. Burk.
2 B.	25. SYSTEMATIC STUDY OF THE VERTEBRATES.—Lectures, . .	3	3	15	Prof. Cope.
2 B.	5. ELEMENTARY VERTEBRATE MORPHOLOGY.—Laboratory exercises, with explanatory Lectures,	6	6	15	Mr. Moore.

2 B.	6. ANIMAL HISTOLOGY.—Lectures and Laboratory work, . . .	6	—	18	Prof. Ryder.
2 B.	7. ANIMAL EMBRYOLOGY.—Lectures and Laboratory work, . . .	—	6	20	"
	9. ANIMAL HISTOLOGY.—Advanced Course. Lectures and Laboratory work, . . .	6	—	7	"
	10. ANIMAL EMBRYOLOGY.—Advanced Course. Lectures and Laboratory work, . . .	—	6	7	"
	12. VERTEBRATE MORPHOLOGY.—Advanced Course. Lectures and Laboratory work, . . .	6	—	omitted	Prof. Jayne.
	13. OSTEOLOGY OF THE MAMMALIA.—Lectures and Laboratory work, . . .	6	6	omitted	"
	22. THE MECHANISM OF LOCOMOTION, . . .	2	2	omitted	Prof. Allen.
	23. MAMMALIAN NEUROLOGY AND CRANIOLOGY, . . .	2	2	omitted	"
	21. ENTOMOLOGY.—The General Anatomy of Insects, with practical exercises in Systematic Coleopterology, . . .	—	—	omitted	Prof. Horn.
BOTANY.					
1 B.	14. GENERAL STRUCTURAL BOTANY.—Lectures and Laboratory work, . . .	6	—	30	{ Prof. Wilson. Dr. Harshberger. Mr. Greenman.
1 B.	15. SYSTEMATIC STUDY OF THE PHÆNOGAMS.—Lectures and Laboratory work, . . .	—	6	30	{ Prof. Macfarlane. Dr. Harshberger. Mr. Greenman.
2 B.	16. PLANT HISTOLOGY.—Lectures and Laboratory work, . . .	6	—	18	Prof. Wilson.
2 B.	17. SYSTEMATIC STUDY OF CRYPTOGAMS.—Lectures and Laboratory work, . . .	—	6	18	{ Prof. Macfarlane. Dr. Harshberger.
	18. PLANT PHYSIOLOGY.—Lectures and Laboratory work, . . .	7	7	6	{ Prof. Wilson. Dr. Harshberger
	19. ECONOMIC BOTANY.—Lectures, . . .	—	—	omitted	Prof. Rothrock.
	26. COMPARATIVE MORPHOLOGY (MACRO- AND MICROSCOPIC) OF LEADING NATURAL ORDERS OF PLANTS.—Lectures and daily Laboratory exercises, . . .	2	2	11	Prof. Macfarlane.
	27. A COURSE OF LECTURES and Practical Demonstrations on the organization of Museums of Comparative Botany for Schools, Colleges and Universities, . . .	—	—	omitted	"

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
	ARCHITECTURE.				
	A. B. C. I. SUMMER SKETCHING.—Completion of a stated amount of drawing during the summer vacation as per programme issued at end of College year. Drawings criticised and passed upon at close of vacation by the instructor. Prescribed (alternately with office work) for all undergraduates in Architecture.	—	—	—	
4 Arch.	A. I. FREEHAND DRAWING.—(a) Drawing details of ornament in outline from the flat, in pencil. (b) Drawing in charcoal from the round.	5	5	16	Mr. Dawson.
4 Arch.	A. 2. MECHANICAL DRAWING.—Geometrical problems and ornamental forms to cultivate accuracy in the use of drawing instruments. Projections, isometric drawing and elementary shades and shadows. Text-book, Faunce's <i>Mechanical Drawing</i> .	3	—	16	"
4 Arch.	A. 3. ELEMENTS OF ARCHITECTURE.—Typical Greek, Roman and Gothic Mouldings. Architectural features rendered in India ink.	3	—	16	Mr. Millard.
4 Arch.	A. 4. ELEMENTARY DESIGN.—Analysis and rendering of architectural forms. A continuation of A. 3.	—	3	23	"
4 Arch.	A. 5. DESCRIPTIVE GEOMETRY.	—	2	23	"
3 Arch.	B. 1. FREEHAND DRAWING.—Drawing from casts of architectural ornament in charcoal and pencil.	5	5	12	Mr. Dawson
3 Arch. 1 Sp. Arch.	B. 2. SHADES AND SHADOWS.—Lectures on theory and practical exercises.	3	—	27	Mr. Millard.
3 Arch.	B. 3. WORKING DRAWINGS.—The preparation of working drawings to scale and full size, from notes and dictations. Drafting room exercises and personal direction.	3	—	10	"
3 Arch.	B. 4. BUILDING CONSTRUCTION.—A consideration of modern practice in the building and finishing of ordinary structures in wood, brick and stone. Lectures.	—	1	30	Prof. Laird.

3 Arch. 1 Sp. Arch. 1 Int. Arch.	B. 5. PERSPECTIVE.—Principles and practical exercises. (B. 5. follows directly on A. 5.).	—	3	24	Mr. Dawson.
3 Arch. 1 Sp. Arch.	B. 6. THE ORDERS OF ARCHITECTURE.—The Five Orders of Classic Architecture, analyzed in lectures and blackboard dictations; memorized and reproduced in finished drawings. Text-book, Vignola.	8	—	33	Prof. Laird.
3 Arch.	B. 6. SKETCH DESIGN.—Three and six hour programmes in design to be rendered in pencil and color in sketch form. Alternating with the regular monthly problems in design.	12	—	omitted	Mr. Millard.
3 Arch.	B. 7. SKETCH DESIGN.—Problems to be rendered in sketch form in limited time. Alternating with the monthly problems in design.	—	—	5	"
3 Arch.	B. 8. DESIGN.—Monthly problems in design of simple character, embodying the application of elementary principles of design and the rendering of architectural drawings.	—	12	14	"
4 Ch.	I. 1. FREEHAND DRAWING.—Drawing in pencil from the object.	1	1	10	Mr. Dawson.
4 Sc.	I. 2. MECHANICAL DRAWING.—Geometrical problems in pencil; geometrical drawing in ink, projections, developments, intersections and isometric drawing. Text-book, Faunce's <i>Mechanical Drawing</i>	2	2	omitted	"
1 B.	I. 3. FREEHAND DRAWING.—(a) Drawing in pencil from the object. (b) Drawing biological specimens from the object in pencil.	3	3	29	"
2 Arch. 1 Sp. Arch.	C. 1. FREEHAND DRAWING.—Drawing in charcoal from casts of architectural ornament; in charcoal from casts of parts of the human figure and in pencil from photographs.	6	6	28	Mr. Everett.
2 Arch. 1 Sp. Arch.	C. 2. SKETCHING.—Drawing in pencil from nature and from the object.	3	3	28	"
1, 2 Arch. Sp. Arch.	C. 3. PEN AND INK RENDERING.—Rendering of architectural drawings in pen and ink; theory of the composition of line drawings. Exercises in two-hour periods during two years under personal direction and criticism. Text-book, Gregg's <i>Architectural Rendering in Pen and Ink</i>	2	2	34	Mr. Eyre.

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students	INSTRUCTORS.
		Term 1.	Term 2.		
2 Arch. 1 Sp. Arch. 1, 2 Arch. Sp. Arch. 2 Arch.	C. 4. MODELING.—Modeling in clay from the flat and the cast with special attention to architectural forms. C. 5. WATER-COLOR DRAWING.—Drawing in water color from still life and from nature. C. 6. SKETCH DESIGN.—Problems to be rendered in sketch form in limited time. Alternating with the regular problems in design. C. 7. DESIGN.—Monthly problems in design developing the principles of planning and composition. C. 8. HISTORY OF ARCHITECTURE.—Lectures and Recitations. Text-book, T. Roger Smith's <i>Classic Architecture and Gothic and Renaissance Architecture</i> .	3 3 — 15 —	3 3 — 15 15	34 35 18 — 18	Mr. Plassehaert. Mr. Eyre. Asst. Prof. Seeler. Prof. Laird and corps of Lecturers.
2 Arch. 1 Sp. Arch. 2, 3 Arch. Sp. Arch. 2 Arch. 1 Sp. Arch. 1 Int. Arch.	C. 9. HISTORY AND ORNAMENT.—Lectures on the historical development of ornamental forms. C. 10. MECHANICS OF MATERIALS.—Principles of Mechanics and their practical application in the use of building materials. C. 11. GRAPHICAL STATICS.—A consideration of the stresses in beams, girders and trusses, and in piers, arches and abutments, with application of the graphical method to their analysis. Lectures and exercises. C. 14. ADVANCED BUILDING CONSTRUCTION.—Lectures on modern practice in the erection of large buildings, with attention to special forms of construction.	1 1 2 2 1 2 1	1 1 2 2 1 2 1	41 omitted 28 omitted 30	Mr. Everett. Mr. Millard. Prof. Laird. Mr. Bryden.
2 Arch. 2 Sp. Arch. 1 Arch. 2 Sp. Arch.	D. 1. FREEHAND DRAWING.—Advanced drawing in charcoal from developed forms of architectural ornament and from casts of the human figure. Seniors in Architecture. Seven hours. Second-year Specials in Architecture. Seven hours.	7	7	6	Mr. Everett.

2 Sp. Arch.	D. 2. SKETCHING.—Completion of Course C. 2 by advanced studies in sketching from nature and objects of art, . . .	3	3	6	Mr. Everett.
2 Sp. Arch.	D. 6. SKETCH DESIGN.—Advanced Problems to be rendered in sketch form in limited time. Alternating with the regular problems in design. Seniors and Second-year Specialists in Architecture, . . .	—	—	6	Asst. Prof. Seeler.
1 Arch.	D. 7. DESIGN.—Advanced Problems in design completing the studies in planning and composition prescribed for Junior year, . . .	20	—	6	"
1 Arch.	D. 8. TEXTILES.—A problem in Architectural Composition requiring plans, sections, elevations and a descriptive essay, . . .	—	25	6	"
1 Arch. 2 Sp. Arch. 1 Int. Arch.	D. 9. ACOUSTICS.—The Acoustics of buildings. Application of known principles to practice. Lectures, . . .	1	—	23	Prof. Laird.
1 Int. Arch.	G. 1. FREEHAND DRAWING.—Pencil drawing from the flat and the object, charcoal drawing from the object and the cast, and the drawing of ornamental forms; with special reference to accompanying studies in Interior Architecture, . . .	4	4	4	Mr. Everett.
1 Int. Arch.	G. 2. WATER-COLOR DRAWING.—Studies in water-color, of tapestries and other fabrics executed in color, with reference to harmony and contrast of color and color composition, . . .	3	3	4	"
1 Int. Arch.	G. 4. THEORY OF DESIGN.—Lectures on the principles of the design and application to First-year problems, . . .	1	1	4	"
1 Int. Arch.	G. 5. PROBLEMS AND CRITICISMS.—Weekly problems in the composition of ornament, comprising studies in fabrics; tapestries, silks, brocades, embroideries and rugs. Mo- saics; in marble and glass. Stained glass; memorial and decorative. Art Metal Work; in brass, copper, gold silver and iron. Furniture; Interior Wood Work; Carving in stone and wood, and the Treatment of Wall Sur- faces; in color, with fabrics, and in relief. Problems studied under criticism and direction of the instructor in charge, . . .	8	8	4	"

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
2 Int. Arch.	H. 1. PENEHAND DRAWING.—Advanced drawing in charcoal from casts of ornament and the human figure and from the object, with special reference to the Second-year studies in Interior Decoration.	4	4	2	Mr. Everett.
2 Int. Arch.	H. 2. WATER-COLOR DRAWING.—Advanced color studies in executed decorations; with reference to harmony and contrast of color and color composition.	3	3	2	"
2 Int. Arch.	H. 4. THEORY OF DESIGN.—Lectures on the principles of the design and composition of interior decorations, with application to Second-year problems.	1	1	2	"
2	H. 5. PROBLEMS AND CRITICISMS.—Weekly problems in the design of interiors, involving the study of the Composition of Interior Decorations. Employing the various studies in Composition of Ornament, enumerated in Course G. 5, and covering broadly the subject of Interior Architecture.	8	8	2	"
Post Sc. 3.	I. 4. HISTORY OF ARCHITECTURE.—Outline course in the History of Architecture. Lectures and Recitations.	1	1	omitted	Prof. Laird.
CIVIL ENGINEERING.					
2 Sc. 3. 4 C. E.	17. SURVEYING.—Theory relating to the use and adjustments of the compass, transit, level, plane table and the smaller field instruments; relocation of boundaries of land; division and computation of areas; topographical surveying; methods of the U. S. Government land surveys.	1	1	23	Asst. Prof. Webb.
2 Sc. 3. 4 C. E.	21. SURVEYING.—Field practice in land, topographical and plane table surveying.	3	3	23	"

In addition to the hours mentioned, one entire week during the Second Term was devoted to a special land survey.

4 C. E.	28. PROJECTIONS.—Elementary plane problems. Orthographic projections in one quadrant. Isometric and oblique projections. Elementary problems in shades and shadows, and linear perspective.	2	—	14	Mr. Worthington.
2 Sc. 3.	32. PEN TOPOGRAPHY.—Conventional signs. Elementary exercises,	2	2	23	"
4 C. E.	35. LETTERING.—Freehand and mechanical lettering,	1	1	17	"
4 C. E.	36. MECHANICAL DRAWING.—Drafting instruments and operations, graphic constructions relating to plane problems and elementary projections; dot, line and brush shading, coloring, graining, representation of earthwork and masonry,	4	4	25	"
1 Sc. 3.	18. SURVEYING.—Theory of hydrographical, mining and city surveying,	1	—	12	Asst. Prof. Webb.
3 C. E.	19. SURVEYING.—Theory relating to railroad surveying. Simple, compound and transition curves; turnouts, etc., . .	—	3	20	"
2 Sc. 3.	22. SURVEYING.—Field practice in city, topographical and hydrographical surveying,	3	—	21	"
3 C. E.	In addition to the hours mentioned, one entire week during the first term was devoted to a special hydrographical survey.				
2 Sc. 3.	23. SURVEYING.—Field practice in staking out simple, compound and transition curves,	—	2	20	"
3 C. E.	25. MAP DRAWING.—Map of Hydrographical survey; map of city survey,	1	1	22	"
1 Sc. 3.	29. DESCRIPTIVE GEOMETRY.—Problems of the point, line and plane; single-curved, double-curved and warped surfaces; intersections, tangencies and developments, . .	—	—	—	Mr. Worthington.
3 Sc.	30. SHADES AND SHADOWS, AND PERSPECTIVE.—Determination of shade lines and brilliant lines and points of curved surfaces and shadows on planes of projection and other surfaces,	2	—	19	"
3 C. E.	33. COLORED TOPOGRAPHY.—Conventional methods of representation and general exercises,	—	2	18	"
3 C. E.	34. TOPOGRAPHICAL DRAWING.—Map drawing based on survey of previous year,	2	—	22	"
1 Sc. 3.		2	—	19	"

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
3 C. E.	37. MECHANICAL DRAWING.—Graphic construction of problems relating to shades and shadows and perspective, . . .	—	2	15	Mr. Worthington.
2 Sc. 3. 2 C. E.	1. MECHANICS OF MATERIALS.—The resistance and elasticity of materials. Theory of flexure. Stresses in simple and continuous beams and long columns. Determination of moments of inertia and radii of gyration. Analysis of combined stresses. Effect of suddenly applied and of repeated loading. Torsional stresses. Designing of riveted joints,	2	2	17	Prof. Marburg.
1 Sc. 3. 2 C. E.	2. MATERIALS OF ENGINEERING.—Properties of building stones and methods of quarrying. Manufacture and use of lime, cement, mortar, concrete and brick. Classification, strength and cost of masonry,	—	1	13	"
1 Sc. 3. 2 C. E.	7. BRIDGE DESIGNING.—Complete design of a plate girder bridge. Computations and detailed drawings,	—	2	14	"
1 Sc. 3. 2 C. E.	9. HYDROMECHANICS, embracing hydrostatics, hydraulics and hydrodynamics.—Pressure and energy of fluids. Determination of centre of pressure, flow by orifices, tubes and weirs. Flow in pipes, conduits, canals and natural streams. Current meters. Hydraulic motors and relative merits of standard types. Measurement and cost of water power,	3	—	16	"
1 Sc. 3. 2 C. E.	10. SANITARY ENGINEERING SYSTEMS.—Sewers and drains. Methods of preparing sewerage plans. Foundations, construction and ventilation. House drainage. Disposal of sewerage,	—	1	17	"
1 Sc. 3. 2 C. E.	24. RAILROAD LOCATION.—Field practice in laying out a short line of railroad, including reconnaissance, preliminary survey, location, determination of grades, cross-sectioning, setting of slope stakes, etc.,	4	—	12	Asst. Prof. Webb.

1 Sc. 3. 2 C. E.	26. RAILROAD OFFICE WORK, based on the data of survey during the preceding term; drawing of final map and profile; amount, haul and cost of earthwork; estimates of masonry; designs of culverts; detailed drawings, . . .	—	3	15	Asst. Prof. Webb.
Post Sc. 3. 2 C. E.	31. STONEWORK.—Stone cutting. Determination of the forms and sizes of stones in the construction of groined, trumpet and cloistered arches, compound and conoidal wing-walls, arched gateways, etc. Construction of templates and use of directing instruments. Theory and preparation of models,	1	—	7	Mr. Worthington.
Post Sc. 3. 2 C. E. 2 Arch.	38. MECHANICAL DRAWING.—Graphic construction of arches, gateways, wing-walls, etc.,	2	—	7	"
	39. SURVEYING.—Theory and field practice in the use and adjustment of the transit and level,	3	—	7	"
Post Sc. 3. 1 C. E.	3. MATERIALS OF CONSTRUCTION.—Manufacture and physical characteristics of Iron and Steel. Strength, elasticity, resilience and conditions by which these properties are affected. Crystallization and granulation. Inspection and specifications. Properties of timber, and methods of preservation,	2	2	5	Prof. Marburg.
1 C. E. 2 Arch. 2 Sc. 3.	4. GRAPHICAL STATICS.—Application of the principles of the force and equilibrium polygons to the graphical determination of shears, bending moments, centres of gravity and moments of inertia. Graphical analysis of the stresses in roof trusses of standard types,	—	2	19	"
1 C. E. 1 Sc. 3.	5. STRUCTURES.—Analytical determination of the stresses in Framed Structures. Modern types of bridge trusses and their relative merits. Treatment of uniform and concentrated load systems, according to the most approved methods. Effect of wind and centrifugal forces. Analysis of details of construction,	—	4	14	"
Post Sc. 3. 1 C. E.	6. SUSPENSION, CANTILEVER AND SWING BRIDGES.—Determination of stresses in bridges of these types by analytical methods,	1	—	5	"

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
Post Sc. 3. 1 C. E.	8. BRIDGE DESIGNING.—Complete design of a railway bridge. Pratt truss. Computations and detailed drawings.	4	4	5	Prof. Marburg.
Post Sc. 3. 1 C. E.	11. FOUNDATIONS, DAMS, PIERS AND ABUTMENTS.—Ordinary foundations, pile and I beam foundations, subaqueous foundations. Theory of Masonry dams and retaining walls, bridge piers and abutments.	2	—	omitted	"
Post Sc. 3. 1 C. E.	12. STONE ARCHES AND CULVERTS.—Theory and methods of construction.	—	1	omitted	"
Post Sc. 3. 1 C. E.	13. ENGINEERING SPECIFICATIONS.—Study of selected specifications relating to iron and steel, masonry, bridge construction, etc.	—	1	5	"
Post Sc. 3. 1 C. E.	14. SPECIAL LECTURES.—Lectures on River and Harbor Improvements, Municipal Engineering, Water Supply, Materials of Engineering etc.	—	—	omitted	"
Post Sc. 3. 1 C. E.	15. INSPECTION TOURS.—Visits to engineering works and manufacturing establishments.	—	—	5	"
Post Sc. 3. 1 C. E.	16. THESIS.—Thesis on a professional subject.	—	—	6	"
Post Sc. 3. 1 C. E.	20. CHORDS.—Figure of the earth. Method of least squares; adjustment and weight of observations; theory of probable error; computations relating to triangulations.	—	3	7	Asst. Prof. Webb.
Post Sc. 3. 1 C. E.	27. RAILWAY ECONOMICS.—General theory of the inception and completion of railway projects; probable volume of traffic and its probable growth; effect of details of alignment on operating expenses and revenue; study of the methods of railway management.	4	—	6	"
4 M. E.	MECHANICAL ENGINEERING.				
	4b. DESCRIPTIVE GEOMETRY.—Principle and application to mechanical drawing. (Faunce's <i>Descriptive Geometry</i>).	1	1	60	Mr. Child.

4 M. E.	4c. DRAWING.—Geometric drawing. Descriptive geometric problems, and elementary mechanical drawing. Use of instruments. Thorne's <i>Junior and Intermediate Drawing Courses</i> ,	3	3	62	{ Mr. Picolet. Mr. Willis. Mr. Morris. Mr. McConnell.
4 M. E.	12a. SHOP WORK.—Manual training in wood and iron work, . .	3	3	61	
2 Sc. 4. 4 M. E.	5. THE STEAM ENGINE.—Description of engines and boiler covering, detail of cylinders, pistons, valves, connecting rods, bed plates, governors, foundations, the ordinary type of boilers with their settings. (Holmes' <i>The Steam Engine</i> , supplemented by the engines and boilers in the laboratory),	2	2	83	{ Prof. Spangler. Mr. Willis.
4 M. E.	7a. KINEMATICS.—Elementary Combinations. Pulleys and belts, link work, gearing, etc. (Goodere's <i>Elements of Mechanism</i>),	3	3	52	"
2 Sc. 4. 3 M. E.	4. DRAWING.—Elementary mechanical drawing. Use of instruments. Copying working drawings, tracing and blue printing. Making working sketches and drawings of pieces of machinery from the model,	3	3	36	Mr. Picolet. Mr. Morris.
3 M. E.	12b. SHOP WORK.—Continuation of 12a,	6	6	12	Mr. McConnell.
2 Sc. 4. 2 M. E. 3 M. E.	1. STATICS.—Application of the principles of statics to rigid bodies. Elasticity and strength of materials. Forms of uniform strength. Theory of framed structures. Stability of structures. Strains in parts of mechanism. (Merriam's <i>Mechanics of Materials</i> .) Designing of beams, columns and shafts, according to the principles laid down,	2	4	51	{ Mr. Child. Mr. Willis.
2 Sc. 4. 3 M. E.	6. KINEMATICS.—General mathematical theory of slide-valve, and link motions and its practical application in designing mechanism of valve motion for automatic and marine engines. Zeuner Diagram applied to the principle automatic and radial gears as well as the slide valve. (Spangler's <i>Valve Gears</i>),	2	2	38	{ Prof. Spangler. Mr. Child. Mr. Willis.

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
2 Sc. 4. 3 M. E.	GRAPHICAL STATICS.—Principles of Graphical statics, and their application to cranes, bridges, roof-trusses and other framed structures. (Merriman and Jacoby's <i>Roofs and Bridges, Part II. Church's Notes and Examples in Mechanics</i>),	—	—	66	{ Prof. Spangler. Mr. Child. Mr. Willia.
1 Sc. 4. 2 M. E.	4a. SKETCHING AND DRAWING.—Making working sketches finished drawings, tracings and blue prints for the tools and machines in the laboratories,	2	2	25	Mr. Picolet.
2 M. E.	12. SHOP WORK.—Manual training in wood and iron work, . .	9	9	23	{ Mr. Morris. Mr. McConnell.
1, 2 Sc. 4. 2 M. E.	2. HYDROSTATICS AND HYDRAULICS.—Transmission of pressure, determining centres of pressure and amount of same under different conditions. Depth of flotation and stability. Theoretical hydraulics. Flow through orifices, over weirs, through tubes; designing dams, flow in pipes, conduits, and canals, water meters, measurement of water power and theory of hydraulic motors. Principles of propulsion of ships. (Merriman's <i>Hydraulics</i>),	—	2	24	{ Mr. Scribner. Mr. Child. Mr. Willia.
1 Sc. 4. 2 M. E.	9. STEAM BOILERS.—Value of fuels, determination of proper proportions for grate and heating surfaces, area and height of chimneys, thickness of shell, size of braces, etc., for various forms of boilers. Making rough sketches and working drawings from original designs. (Wilson's <i>Steam Boilers. Law and Bevis' Machine Drawing and Design</i>),	4	2	23	Mr. Scribner.
2 E. E.	9a. STEAM BOILERS.—Value of fuels and determination of proportions. (Wilson's <i>Steam Boilers. Low and Bevis' Machine Drawing and Design</i>),	—	2	5	Mr. Child.

2 M. E.	15a. THERMODYNAMICS. LABORATORY WORK,	3	3	8	{ Prof. Spangler. Mr. Scribner.
1 Sc. 4. 2 M. E.	11. ELECTRICITY.—Measurements and discussion of electrical quantities, and their application to the construction and use of galvanometers, batteries and accumulators, etc. (Jenkins' <i>Electricity and Magnetism</i> . Ayrton's <i>Practical Electricity</i>),	2	2	34	Mr. Schramm.
2 E. E.	11b. ELECTRICITY.—(Preece and Siveright's <i>Telegraphy</i>),	2	2	4	"
2 M. E.	21a. ELECTRODYNAMICS.—Laboratory work,	3	3	10	"
Post Sc. 4. 1 M. E. 4.	3. HYDRODYNAMICS.—The design of reaction and impulse turbines, measurement of flowing water, description and discussion of experiments. Hydraulic pressure engines. (Bodmer's <i>Hydraulic Motors</i>),	2	2	10	Prof. Spangler.
Post Sc. 4. 1 M. E. 4.	14. THERMODYNAMICS.—Mechanical theory of heat. Application to steam, air and gas engines, and refrigerating machinery. Wood's <i>Thermodynamics</i>),	3	3	10	Mr. Scribner.
Post Sc. 4. 1 M. E. 4.	15. THERMODYNAMICS.—Testing engines, boilers, gauges and indicators, determining duty of pumps, and injectors, calorimetric work. (All in Laboratory),	6	6	10	{ Prof. Spangler. Mr. Scribner.
Post Sc. 4. 1 M. E. 4.	16. MARINE ENGINEERING AND NAVAL ARCHITECTURE.—Naval Architecture. (Thearle's <i>Theoretical Naval Architecture</i> . Sennett's <i>Marine Engines</i>),	1	1	17	Prof. Spangler.
Post Sc. 4. 1 M. E. 4.	17. DESIGNING MACHINERY.—Continuation of work on Steam Engines and Boilers from Senior year. Application of the principles of design to special machinery,	7	7	10	{ Prof. Spangler. Mr. Picolet.
Post Sc. 4. 1 M. E. 4.	20. ELECTRODYNAMICS.—Measurement of electrical quantities and their application to the theory, construction and use of dynamos, motors, galvanometers, batteries, etc. (Ayrton's <i>Practical Electricity</i> . Thompson's <i>Dynamo Electric Machinery</i> . Slingo and Brooker's <i>Electrical Engineering</i> . Kapp's <i>Electric Power Transmission</i>),	2	2	10	Mr. Schramm.

CLASS.	SUBJECT OF COURSE.	HOURS PER WEEK.		Number of Students.	INSTRUCTORS.
		Term 1.	Term 2.		
1 M. E.	8. STEAM ENGINE.—Determination of the proper proportions for cylinders, valves, pistons, rods, shafts, fly-wheels, etc. Making rough sketches and working drawings from original designs. (Marks' <i>The Steam Engine</i> , Unwin's <i>Machine Design, Part II.</i>) Each student is required to design the principal parts of an engine after one of the well-known types, calculating the parts when the question of strength enters, and following the general design of the chosen type when the proportions are matters of experience,	—	4	15	Mr. Scribner.
1 M. E.	13. SHOP WORK.—Making patterns from working drawings, finishing castings, and making, finishing and fitting parts of machinery. Pipe fitting,	9	9	18	{ Mr. Morris. Mr. McConnell.
Post Sc. 4.	7. KINEMATICS.—Laws of motion. Combinations of pure mechanism. Pulleys and belts. Trains of gearing and forms of teeth of wheels. Link work,	2	2	10	Prof. Spangler.
Post Sc. 4.	21. ELECTRODYNAMICS.—Laboratory work. Wiring, testing dynamos, motors and storage batteries, calorimetry, measurement of currents, insulation, etc.,	6	6	10	Mr. Schramm.
Post Sc. 4.	24. ELECTRICITY.—Graphical Analysis of Alternating Currents. (Blakeley's <i>Alternating Currents</i>),	1	1	9	Prof. Spangler.
Post Sc. 4.	18. VISITS TO MANUFACTURING ESTABLISHMENTS.—Students are required to visit various machine-shops, foundries, iron and steel rolling-mills, shipyards, electric-light plants, etc.; to make reports (illustrated) on the general arrangement of plants, arrangement of power, tools, etc., in shops, descriptions of particular machines and processes. Sixteen weeks, one visit per week,	—	—	10	"

The total number of courses offered was three hundred and thirty. This number would be larger if some of the courses which were given to several classes in somewhat different form, as for example the elementary course in Chemistry, were divided into separate courses.

One hundred and twenty-one of the courses were limited to one term, and one hundred and ninety-four extended throughout the year. The remaining fifteen consisted of a series of lectures only, occupied a fraction of a term, or had no definite number of hours assigned.

Of the one term courses, twenty-five demanded one hour of instruction per week; forty-eight, two hours; nineteen, three hours; thirteen, four hours; twelve, six hours; and four, more than six hours: of the two term courses, forty-four required one hour; eighty-two, two hours; thirty-one, three hours; two, four hours; four, five hours; and twenty-two, six hours or more. In 1888-89 the number of courses offered was one hundred and eighty-four. All of the courses offered this year were not given; forty-three were omitted because they were not elected or because the course of instruction of which they formed a part were not fully in operation.

As the annual catalogue shows very clearly the requirements for each year of the different courses, it will not be necessary to give tables and show the number of hours for each class. The following which give the elective combinations made by regular Juniors and Seniors in the Arts course will be of interest. Some members of the class were pursuing the course in Biology, or had special rosters and are not included.

JUNIORS IN ARTS.

NUMBER OF COMBINATIONS.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL.
Required.	English,	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
	English Literature,	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
	Logic and Ethics,	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
Elective.	Greek,	5	3	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	10
	Latin,	5	3	—	1	1	—	—	—	—	1	—	1	1	—	—	—	—	13
	German,	—	—	1	1	—	1	—	1	1	—	—	—	1	1	—	—	—	7
	French,	—	—	1	—	—	1	—	1	1	—	—	—	1	1	—	—	—	8
	Hebrew,	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	Astronomy,	5	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	7
	Determinants,	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
	Physics,	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
	History of Philosophy,	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
	General Psychology,	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	3
	Experimental Psychology,	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
	History of Ethics,	—	—	—	—	—	1	—	—	—	—	—	1	1	—	—	—	—	3
	English Literature,	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	7
	English Philology,	3	3	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	3
	English History,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1
	Mediaeval History,	—	—	—	1	1	—	—	—	—	—	—	1	1	—	—	1	—	6
	History of United States,	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	2
	General Chemistry,	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
	Qualitative Analysis,	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
	Botany,	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
	Zoölogy,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	Number of courses,	6	7	6	6	6	7	7	9	6	6	6	7	7	7	7	4	7	
	Number of hours,	15	17	11	11	15	13	—	17	11	11	11	17	13	13	14	7	11	

SENIORS IN ARTS.

NUMBER OF COMBINATIONS.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	TOTAL.
Required.	History of Philosophy,	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	22
	General Psychology,	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	22
	English Literature,	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	22
	Constitution of United States, 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	22
Elective.	Greek,	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
	Latin,	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
	Sanskrit,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
	Hebrew,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
	German,	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
	French,	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17
	Italian,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
	Spanish,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	Linguistics,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
	English Philology,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
	English Literature,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12
	Experimental Psychology, 2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
	English History,	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
	Medieval History,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	General Chemistry,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Number of courses,		8	7	6	8	7	10	7	6	6	10	7	7	8	7	7	8	8	7	8	7	7	6	
Number of hours,		16	13	11	16	13	19	13	11	11	19	13	13	16	13	13	15	15	13	16	13	14	12	

The past two years have been years of intense activity and have witnessed the most important changes that have been made in the history of the College, the reorganization of the College Faculty and the radical change in the course in Arts. While the Faculty was small and each subject was in the hands of one professor or of one professor and an instructor, all questions of business, the educational policy, the selection of instructors, the arrangement of courses and the supervision of the students could be quite readily considered by the Faculty at large; but with the growth of that body in the appointment of several professors of equal rank in each great subject and the subdivision of subjects of instruction and multiplication of courses, the need of some more definite organization became apparent. After much consideration it was decided to divide the Faculty into committees composed of the instructors in the different larger divisions of instruction, which should be given larger powers than had hitherto been held by the individual professors. The committees have supervision of the following groups of subjects: Ancient Languages, Modern Languages, Philosophy, History, Economics, Mathematics, Physics, Chemistry, with Mineralogy and Geology, Natural History, Architecture and Drawing, Mechanical and Electrical Engineering, Civil Engineering and Mining Engineering.

They include not only the professors but also the instructors who, although not entitled to a vote in the Faculty, are in this way brought more closely into contact with the chief professors, and are trained in the policy it is desired to adopt. The first appointment of the chairman of these committees was made by the Dean, and it is possible that this method will always be the best to secure as chairman the most suitable member. He may not be the most prominent instructor or hold the highest rank but should possess the energy, enthusiasm and other necessary qualities for the position which bids fair to become more important as the details become more complex: To one who has been intrusted to a very large extent with the general business of the Faculty, the effecting of this organization seems a great help in advance—for the results were immediate and most gratifying—meetings of the different committees have been held regularly, a more intimate acquaintance with the needs of the students has been acquired, plans of work carefully arranged, and a new spirit of enthusiasm aroused. Two or more departments have had joint

meetings for the discussion of matters of common interest, and several questions involving radical differences of opinion have thus been adjusted. Indeed, it would appear that by no other method could the new curriculum of the Arts course be satisfactorily carried out, and, although attention has been called to this reorganization first, it is really the outgrowth of the change in that course. This change has been in contemplation for several years. It was very evident that something must be done to put this course on a more satisfactory footing. While the technical courses were developing rapidly and the special schools were receiving increased support from larger entering classes and financial encouragement from the friends of the University, particularly interested in these subjects, the central course was not growing and there was no opportunity of using effectively the teaching force which we already possess or to hope to stimulate a demand for more. It was not that these subjects, the Languages, History, Philosophy, Economics and the pure Science, were less in demand, but that there was a scattering of energy on the part of the instructors and the students.

The question was brought before the Faculty last year and two committees were appointed, one to consider the reorganization of the course in Arts and the other to consider the larger question of the state of all the courses in the College.

These committees met separately and jointly during the whole of the College year, 1892-93, and finally reported a plan which, after much careful consideration by the Faculty, was unanimously adopted on June 3, 1893, and received the approval of the Board of Trustees. This plan embodies the adoption of the course system in place of the almost free elective system, not that the latter has ever been the system with us. In the past the curriculum in the two lower years of the course in Arts was fixed, there was but one course. In the Junior and Senior years a large proportion of the studies were required, and the rest were elective, with the condition that the election should be made in a certain definite way, always two-language studies and one, at least, from a historical and scientific group. This condition limited the choice of electives, for the number of hours which could be chosen per week was fixed, and as a result the students adopted no rational method in the selection of their electives, and it was impossible to push the work in any one subject to a satisfactory result, as is shown in part in the table exhibiting the

electives chosen this year by the Seniors in Arts. The Juniors in Arts elected under the new plan. This new plan introduces five distinct courses in the Freshman and Sophomore years, which may be shown as follows, the number after the subject indicating the number of hours of instruction per week.

FRESHMAN YEAR.

I.	II.	III.	IV.	V.
English 3.	English 3.	English 3.	English 3.	English 3.
History 3.	History 3.	History 3.	History 3.	History 3.
Mathematics 4.	Mathematics 4.	Mathematics 4.	Mathematics 4.	Mathematics 4.
Hygiene 1.	Hygiene 1.	Hygiene 1.	Hygiene 1.	Hygiene 1.
Greek 3.	Latin 3.	French 3.	German 3.	Latin 3.
Latin 3.	German 3.	Latin 3.	French 3.	Science 3.

SOPHOMORE YEAR.

I.	II.	III.	IV.	V.
English 3.	English 3.	English 3.	English 3.	English 3.
History or Mathematics 3.	History or Mathematics 3.	History or Mathematics 3.	History or Mathematics 3.	History or Mathematics 3.
Physics 3.	Physics 3.	Physics 3.	Physics 3.	Physics 3.
Chemistry 3.	Chemistry 3.	Chemistry 3.	Chemistry 3.	Chemistry 3.
Greek 3.	Latin 3.	French 3.	German 3.	Latin 3.
Latin 3.	German 3.	Latin 3.	French 3.	

In the Freshman year, the English is composition work and the study of the English language; the History, European history for one term, and American history for one term; the Mathematics, algebra, solid geometry and plane trigonometry. One lecture a week on hygiene and two hours in the gymnasium are also required. In course V. the science this year was a course on Mammalian Anatomy.

In the Sophomore year the English is English literature and composition work; the History, European history; the Mathematics, analytic geometry. The Physics and Chemistry are laboratory courses. Upon the completion of the Sophomore year in any one of these courses, the student is prepared to devote attention to a more limited group of studies. In his choice he is restricted to a certain extent by the course which he has pursued, but only in respect of the languages.

In the Junior year five hours are prescribed for all students, three in English language and literature, and two on logic and ethics. Two hours are for free electives chosen under the advice of the instructors in the group studies.

The remaining eight hours are devoted to the two studies of his group, the details being arranged by the committee of the Faculty having supervision of those subjects.

The groups are the same in Senior year, but ten hours per week are given to those subjects, and the students may elect courses to fill the remaining five hours required. The groups are : 1, Greek and Latin ; 2, Latin and German ; 3, Latin and French ; 4, German and French ; 5, English and German ; 6, English and French ; 7, History and English ; 8, Philosophy ; 9, Economics and History ; 10, Physics and Mathematics ; 11, Mathematics and Astronomy ; 12, Chemistry and Physics ; 13, Biology and Chemistry.

It will be observed that the essential subjects are contained in the two lower years, and it is believed that in the upper years better results will be obtained by the more careful study of a few well chosen subjects, which can thus be carried further than has ever been attempted in our undergraduate course. For example : The student who selects the Latin and Greek group, devotes to these subjects, in the Junior and Senior years together, eighteen hours a week. In the old course, eleven hours only could be given to these subjects. The new plan permits of the introduction of additional courses in classical Philology, Archaeology and History, and makes it impossible that either Latin or Greek shall be taught by one professor only. In the French and German group, eighteen hours a week are devoted to these languages in the upper two years, after twelve hours of instruction in these subjects in the lower two years—a total of thirty hours. In the old course, French and German were given only in the upper years for thirteen hours ; this is a gain of seventeen hours. The student who has chosen German and French from his Freshman year will be twice as far advanced in this subject as it was possible for him to be under the former plan. The same is true to a greater or less extent of the other groups. The two years' courses in the Wharton School and the School of Biology are still open to students at the beginning of the Junior year.

The requirements for admission to these courses are the same as have existed, English, History, Mathematics including arithmetic, algebra and plane geometry, and the two languages of the course the student proposes to enter. For the fifth course which contains only Latin, two languages are required, one of which must be Latin ; the requirements in French and German will be

advanced to make them more nearly equal those in Latin and Greek. The degree of Bachelor of Arts is given those who successfully complete the course, taking Greek and Latin through the four years. The degree of Bachelor of Science is conferred on those who pursue the other courses.

The broadening of the course in Arts affected the general course in Science. It was seen at once that all students who desired a liberal as distinguished from the technical course would no longer enter the Science course. The latter has, therefore, been modified somewhat and is intended for the students who will give five years to technical study, two in preparation and three to the technical studies proper. The name of the course has been changed to that of Science and Technology. The Freshman year contains English (3), Mathematics (4), Drawing (2), History (2), German or French (5). The Sophomore year contains English (3), History (3), Mechanical Drawing (3), Mathematics (4), Descriptive Geometry and Shades, Shadows and Perspective (2), Physics (2), Chemistry (3), German or French (3). There is a provision that students who do not intend to take the technical courses in Metallurgy and Mining, Civil Engineering or Mechanical Engineering in Junior year may substitute for the courses in Descriptive Geometry and Drawing, History, pure Mathematics or Biology. But it is hardly expected that students of that class will enter this course. The requirements for admission and for the degree remain the same.

The great diminution in the number of students entering this course has been a source of considerable anxiety to all, because the results of the five year technical course have been so uniformly satisfactory that it would be deeply regretted if they are permanently affected by the change in the Arts course, and the introduction of the four year technical courses.

To carry out the idea, moreover, in these reorganizations and as a natural growth of the different departments, important changes have been made in the work in the various subjects.

The election of a Professor of Classical Philology has enabled the committee to broaden and strengthen the Latin and Greek courses.

The instruction in the English branches has been reorganized. The work in English literature, English composition and declamation, is under the charge of Professor Schelling and his assistants, and the early English literature and English philology

under Professor Eaton. The University is to be congratulated in possessing the services of two such competent, cultured and enthusiastic heads to this most important department. It is particularly gratifying that while the more advanced work is being pushed with vigor, more time and attention is being given to English composition and declamation, the interest in which has largely increased. More students are contestants for the prizes in this department, and the well-earned victory of the Pennsylvania representation in the dual oratorical contest with Cornell, is a source for congratulation.

Professor Rennert returned from abroad last autumn and took charge of the courses in Romance, languages and literature, and Mr. Lorenz was appointed to assist him. This is the first time that these courses have been put upon a satisfactory, permanent and independent basis; but if the field is to be widely covered additional teaching force is indispensable. The work in German was sadly interrupted by the death of Professor Seidensticker. It will be difficult to fill the place of this learned and courteous Christian gentleman whose influence was always for good, and whose death is a personal loss to every member of the University.

The condition of the Department of History is most satisfactory, and it may be regarded as the most thoroughly equipped of our branches. There are four professors and an assistant, and the field of American and European history is well covered. It must be remembered, however, that that field is large and there are others of deep interest which only await proper development.

The detailed statement in the catalogue and the increased roll of instructors and students show the continued growth and success of the Wharton School. If one line more than another has been developed it is that indicated by the courses of lectures by eminent specialists upon the practical topics of the day; but the work has been pushed with vigor in all directions. Since my last report the value of a four year course, embracing in the two lower years some of the subjects taught in this school, has become more apparent and after much careful consideration and with due regard to all opinions, such a course has been definitely announced for next year. The requirements for admission are similar to those exacted for the courses in Arts and Science, except that German must be one of the languages presented. The details of the course

itself need not be given here ; they have received careful study and it is confidently expected that the course will be useful and popular.

Closely associated with the work of the Wharton School, if not to be regarded as part of it, are the courses in Journalism. These were given this year for the first time, by Professor Johnson, whose wide experience renders him eminently fit to handle this important subject. The object of these courses should be clearly understood. They are not introduced into college work for the purpose of training journalists—more than instruction is required for that purpose—but they are intended to assist by teaching some of the technical and business subjects connected with newspaper work in the general broad education of the young men who design to follow this profession. The mental equipment of such students must be gained by liberal studies in the lines of literature, science, economics and philosophy. With the rapid growth of the technical schools the classes in mathematics have increased in size, an additional instructor was required last year, and one if not more must be provided for the coming year. The voluntary class offered as aids to the regular work in lower years have met with success, and it is encouraging to notice a growing interest in the subject of pure mathematics. It has not been possible to develop the work in Astronomy which certainly deserves more serious attention.

The excellent results obtained by the Department of Chemistry in adopting the laboratory method of instruction to beginners, by which each student was put at once to work out practically what he had learned in lecture and recitation, lead to the extension of the method in part at least to the Department of Physics. The cases, however, were somewhat different. In Chemistry the laboratories existed and the methods had been more thoroughly elevated ; in Physics the method was to some extent still on trial, and there were no laboratory facilities for elementary work. Both these difficulties were overcome by the energy and experience of the head of the department. The rooms on the north side of the west wing of the basement, left vacant by the Department of Mechanical Engineering, were assigned to the Physical Department and transformed into a large laboratory, abundantly lighted and equipped for elementary work. A workroom fitted with gas engine, lathe and tools for manufacturing and repairing instruments and apparatus, and a museum for the older instruments not

in use in the lecture room or laboratory. The storerooms on the opposite side of the hall have been furnished as laboratories for advanced work, and the main laboratory refitted with new work tables. The entire department has been cleaned and repainted, and a considerable of new apparatus has been acquired. These changes called for additional teaching force. The students who begin Physics by laboratory work are the Freshmen in Chemistry and the Sophomores in Arts and Science, and special students of the first year in Biology. The students in the Freshmen and the technical departments follow the old plan of instruction by lecture and recitation.

The work in Biology has been most satisfactory. All of the more elementary courses were given, and several courses of advanced instruction were selected for the first time.

The classes have been larger than ever, eighty-eight students—including graduate students—receiving instruction during this year. The general interest and enthusiasm constantly increases. It was thought best, last year, that the instruction of the veterinary students in botany and zoölogy should be given in the veterinary building—since the classes in these subjects had become so large that a division into sections was in any event imperatively demanded. The withdrawal of these students from the biological laboratory rendered certain rearrangements of the rooms possible. The large laboratory on the third floor was divided into three rooms, a dissecting room for the class in anatomy, a laboratory for histology, embryology and advanced zoölogy, and a storage room for diagrams and specimens. The laboratory of Experimental Psychology was transferred to the room on the south side of the second floor, made vacant by the withdrawal of Professor Allen to the Wistar Institute, and the laboratory thus rendered available was devoted to advanced work in Histology and Embryology. The museum was transferred to the west laboratory on the first floor, and the large lecture room and east laboratory have been thrown into one large room for the classes in elementary botany and zoölogy.

Additional microscopes, books, diagrams and specimens have been added to the equipment. Particular attention should be called to the exquisite collection of plants preserved in alcohol which has been made by Professor Macfarlane to illustrate plant morphology and physiology.

The regulations, governing the admission of graduate students in biology to the second year of the four year course in medicine, have been formulated as follows:

College *graduates* in Arts or in Science who, during their College course, have devoted to the study of the branches named below the number of hours stated, are admitted to the *second* year of the Medical course without an entrance examination. These studies may have been pursued during any period of the College course leading to a degree. Students entering under these conditions must, during their first session in the Medical Department, take instruction in Materia Medica and Pharmacy and pass examinations in these branches by the end of the session.

General Biology	96 hours.	Histology	72 hours.
Mammalian Anatomy . . .	144 "	Human Anatomy	144 "
Botany	180 "	Physiology	48 "
Chemistry	216 "	Zoölogy	96 "
Physics	72 "	Embryology	72 "

Six students in the University fulfilled this year these requirements and have received the bachelor's degree. Of these three were admitted to the Senior class, having pursued biological courses in other colleges. The adoption of this arrangement by the two faculties was an important step and the results will be watched with great interest by all who have higher medical education at heart. This arrangement and the increasing demand for more advanced instruction calls for a longer course of study than that furnished in the two year course preparatory to medicine which was instituted when the school was founded. An attempt has been made to introduce this in the form of a four year course in Natural History, but this was but partially successful, as it was too widely elective, and the annual difficulties with the rosters became at last almost unsurmountable. A definite four year course in Biology, embracing literary and other scientific studies, would be popular and enable the faculty to present the different divisions of the subjects under their charge in a more thorough and orderly manner.

The Naturalists' Field Club has had regular and interesting meetings, and the results of the investigations in the laboratories have been published in the contributions from the zoölogical and botanic laboratories. Record should be made of the establishment by the Kappa Kappa Gamma Fraternity, a society composed of women students, of a prize, open to all students in the biological

school, which grants the successful competitor the use during the summer of the society's zoölogical table at the Wood's Holl laboratory. The prize was awarded this year to one of the women students upon recommendation of the biological faculty.

In my last report I noted the completion of the laboratories for mechanical and electrical engineering and called attention to the pressing need for a new laboratory of chemistry. This need has now been met, and a new building devoted exclusively to instruction in this science will be ready for use in the Autumn.

It has been erected on the ground recently purchased by the University at the northeast corner of Thirty-fourth and Spruce streets opposite the steam heating plant and near the laboratory of hygiene. It is E-shaped and fronts upon Thirty-fourth street the wings extending toward Thirty-third street. The frontage is 168 feet and the wings 105 feet in depth and 37 feet in width. The main portion which is 94 feet wide is three stories and the wings two stories high. The central smaller wing is one story in height and is occupied by a large lecture room, which will accommodate over two hundred persons. On the first floor of the building, on the southern side of the entrance, are the Director's office and private laboratory, the balance and storerooms and a large laboratory, occupying the entire southern wing and containing one hundred and twelve desks to accommodate double that number of students. This laboratory is for beginners only and must be large because of the adoption of the laboratory method for beginners.

The northern side of the first floor contains the coat closets, the room for preparation for lectures, a laboratory for iron and steel analysis, the laboratory for assaying, a room for heating under pressure, a balance room, a room for gas analysis and a technical laboratory where preparations may be made on a more extended scale than in the other laboratories.

On the second floor, on the south side, are two special laboratories for advanced students, a balance room, a museum, and a small lecture room and a large qualitative laboratory accommodating seventy students. There are also several stock rooms for this floor; on the north side is a room for advanced students, an instructors' laboratory, the electrolytic laboratory, a dark room for photography, a room for spectroscopic work, a recitation room, a library and a large quantitative laboratory, which will accommodate forty students. Adjoining all these larger laboratories are assistants' and balance rooms and rooms for hydrogen sulphide.

The third floor contains a large organic laboratory for thirty students, three private rooms for instructors and special workers, a balance room, a combustion room and some storage rooms. The building is heated by steam, lighted by electricity and thoroughly equipped with all the apparatus, which experience has shown to be desirable. Its exterior is of red brick with terra cotta trimmings, and the interior is finished in Virginia sap pine and painted plaster. It can be seen that this laboratory meets very thoroughly the present needs of the department, and it will probably require no enlargement for some time.

During the past two years the high standard of the Chemical Department has been maintained, and no effort has been spared to render the instruction better and to open up new fields and to kindle enthusiasm among the students. The number of students taking chemistry has increased largely—both by a growth in the department itself and because of the growth of other departments whose students are required to take chemistry.

A new course has been added to the list of the four-year technical courses—that in Chemical Engineering—leading to the degree of Bachelor of Science in that subject. It was found that a chemist who was called upon to take charge of works, demanding the extension of the applications of chemistry needed considerable equipment as a mechanical engineer, in order to master the difficulties of construction which constantly present themselves, hence a course has been established embracing a union of the two subjects, although the course may still be regarded in the main as a course in Chemistry. Four Freshmen entered this course, and one student was admitted as a Junior to advanced standing. For several years a few students have elected some of the work in Mining Engineering, but there has been no serious effort made to develop that course. Now, however, with the other technical courses reorganized and successful, the time seems proper for enlarging and stimulating instruction in this direction.

The work in Mechanical and Electrical Engineering has increased enormously. About one-fifth of all the students in college are in these courses—the number of students in the department having nearly doubled within the last two years. It has been necessary to increase the teaching force and to purchase additional apparatus. Already the new building is crowded, and it is probable that next year some of the class must be accommodated in the main college building. Fortunately ample space for the

extension of the laboratory building is left to the west and north. The introduction of the four-year courses in these subjects is certainly popular, and the results thus far obtained are satisfactory. The same energy which has made the department such a conspicuous success in the past bids fair to found in Philadelphia one of the great technical schools of the world.

The hopes expressed in my last report for the successful reorganization of the course in Civil Engineering have been fully realized. Under Professor Marburg's energetic direction and excellent judgment the course has been made strong and attractive and the number of students increased beyond the highest expectation. The two weeks' trip into the field required of certain of the classes has been a valuable innovation.

The adjustment of the rosters and plans of the four-year and five-year courses has been difficult, and this difficulty which must always exist to a certain extent together with the rapid growth of the department calls for increased accommodation. The timely vacation of the rooms on the first floor and basement used by the Chemical Department will give the Civil Engineering school new quarters, increased drafting rooms and enable the establishment of much needed testing laboratories. The rooms in the basement will be much more convenient for the surveying parties.

The success of the School of Architecture has been much greater than the growth in the number of students would seem to indicate. For examination of the rolls will show that the number of partial and special students has been reduced, and those who now appear as such are not students pursuing certain lines of Art work in a more or less desultory fashion, as was necessarily the case when the course was first opened, but are earnest students who have usually had some years' training in an architect's office and are pursuing the definite two-year course, leading to a certificate of proficiency. In addition to the regular four-year course leading to the bachelor's degree and the two-year special course just mentioned, the school offers a two-year course in Interior Architecture or Interior Decoration, which fits the student to enter at once upon this work which has grown to be an important profession. Four students took the work of the first year, and two were in the second year of this course.

The officers of the school have been increased by an Assistant Professor of Design, an instructor in Architecture and an instructor in Modeling, and now comprise three professors, six

instructors and five lecturers on special subjects. These lectures, principally by the younger Philadelphia architects in active practice, continue to be an important feature of the school. In the absence of Professor Dana, Mr. Everett had charge of the classes in Water-Color Drawing.

Mention should be made of the establishment at the University of Pennsylvania of a chapter of the Phi Beta Kappa Society. This was accomplished principally by the zeal of Professor Fisher, who as a member of the Cornell Chapter with the Rev. Dr. Furness, from Harvard, and the Rev. S. W. Dana, from Dickinson, were constituted charter members. Subsequently a number of members of the Faculty were elected members, and these in turn selected two or more graduates from each class to complete the membership.

The selection was made upon the basis of high scholarship while in college or the attainment of distinction in after life. The first meeting of the society was held on April 5, 1893, and the following officers were elected: Rev. W. H. Furness, D. D., President; Horace Jayne, M. D., Vice-President, and George E. Fisher, Secretary-Treasurer. Five Seniors were elected under graduate members. A committee was appointed to arrange for the literary meeting in June, 1894. Last year four Seniors and one Junior were elected members, and at the annual meeting the same officers were elected. The first public literary exercises were held in the library on the afternoon of June 7. They consisted of an introductory address by the President and the oration of the day by Mr. Hampton L. Carson, of the Class of 1871. After these exercises the society entertained its guests.

The chapel exercises have been conducted during the year by the chaplains in the manner described in my last report, and have proved perfectly satisfactory. The students were interested and the order was exemplary. There was a decided improvement in the work of the choir, and the organist and leader, Mr. Morgan, deserves great credit for his able management. By the efforts of the chaplain and organist and with the co-operation of Professor Clarke, a large and effective pipe organ was purchased and placed in the chapel under the middle stained-glass window.

An experiment was tried last year in changing the hour of morning service from ten to ten minutes before nine o'clock, but the change was not popular, and then after a few weeks upon request of the students the old hour was restored.

While these religious exercises are in themselves satisfactory, it must be remembered that their scope is necessarily restricted, and I would again urge the necessity of a separate building that the daily exercises may become a part of the life of the entire University.

It was unfortunately found necessary this year to abandon the old custom of having the student's diplomas signed by all the instructors. The great number of professors and assistants, and the multiplication of courses had rendered it almost impossible to have the diplomas signed properly and with dispatch, so the practice in vogue in other large institutions of requiring only the signatures of the executive officers, was adopted. The introduction of the course-book system, however, makes this loss scarcely felt, because in this book the student preserves not only the signature of each instructor secured at the end of the term, but has also a definite statement of the amount of work accomplished.

The general order and conduct of the students has been excellent. There have been no outbreaks of disorder, and class rivalry has been maintained within healthy limits. There have been a few cases of infraction of the general rules, dishonesty at examination, and one case of insubordination for all of which due and severe punishment has been inflicted. It was necessary in the latter half of the year to act more strictly in respect of students' absences; by summoning students very regularly for a few weeks the difficulty disappeared. The buildings and grounds under my care have been kept in good order and repair, and such improvements as seemed desirable and expedient have been made with the limited means at my command. It was not always possible to carry out all our plans or to comply with the wishes of the heads of the different departments.

HORACE JAYNE,
Dean.

APPENDIX No. XIII.

REPORT OF THE DEAN OF THE DEPARTMENT OF PHILOSOPHY.

DEAR SIR :—I have the honor to submit the following report of the Department of Philosophy for the year 1893-94 :

Of the seventy-eight regular students, candidates for a higher degree on the rolls in 1892-93, thirteen were graduated in June,

1893, with the degree of Doctor of Philosophy, and four—one man and three women—with the degree of Master of Arts. Nineteen students left at the end of the year, fifty-three new students entered in the autumn of the present year. Of the thirty-nine special students, seventeen left at the end of the year, twenty entered again as special students and two became regular students, thirty-eight new special students entered at the beginning of the year 1893. There were, therefore, in attendance during the year just closed, ninety-six regular students and fifty-eight special students.

The present matriculates have graduated or pursued graduate courses at the following institutions :

Amherst College.	Lafayette College.
Antioch College.	Lehigh University.
Bates College.	Mecklenberg College.
Boston University.	Princeton University.
Brethren's College (Huntington, Pa.).	Roanoke College.
Brown University.	St. Stephens College.
Calvin College (Cleveland, Ohio).	Swarthmore College.
Cornell University.	Syracuse University.
Fisk University.	Thiel College.
Franklin and Marshall College.	University of Pennsylvania.
Hampton College.	University of Michigan.
Harvard University.	University of Missouri.
Haverford College.	University of Toronto.
Illinois Wesleyan University.	Upper Iowa University.
Iowa University.	Ursinus College.
Johns Hopkins University.	Vassar College.
Kenyon College.	Villa Nova College.
Knox College.	Wellesley College.
	Willenberg College.

At the Commencement in June the degree of Doctor of Philosophy was conferred upon ten candidates and the degree of Master of Arts upon five. During the year one hundred and twenty-four distinct courses of instruction were offered by the officers of the department. Such as were selected were put upon the roster and given regularly throughout the year. Of the daily routine of instruction there is little to record, save a growing interest on the part of the members of the Faculty, and the realization that the graduate work is part of their duties and the line of greatest development. The Faculty has had its regular meetings and has discussed very fully the general policy of the department. Although all its action has been conservative, a few changes have

been made in the requirements for the Doctor's degree. The number of separate subjects from which the three necessary subjects may be chosen has been increased from twenty-one to twenty-five by the separation of English Language and English Literature, the introduction of Ethics, Statistics, and the separation of Mineralogy and Geology.

The subjects in the list, therefore, are now :

1. American Archæology and Linguistics.
2. American History—Political and Constitutional.
3. Botany.
4. Chemistry.
5. Comparative Philology and Sanskrit.
6. English Language.
7. English Literature.
8. Ethics.
9. European History.
10. Experimental Psychology.
11. Geology.
12. Germanic Philology and Literature.
13. Greek Language and Literature.
14. Latin Language and Literature.
15. Legal Institutions—History and Development.
16. Mathematics.
17. Mineralogy.
18. Political Economy.
19. Political Science.
20. Philosophy.
21. Physics.
22. Romance Philology and Literature.
23. Semitic Languages and Literature.
24. Statistics.
25. Zoölogy.

The following rules have been adopted to govern the selection of language courses :

GENERAL PHILOLOGICAL COURSES.

The following are obligatory upon all students choosing a *language* as major or minor, and are open to all other students, whether candidates for a degree or not :

1. General Principles of Phonetics.—Ten Lectures (*First Term*). Professor RASTON.
2. History and Development of Writing.—Ten Lectures (*Second Term*) as follows :
 - a. One Lecture on the Picture-Writing of Pre-Historic Times. Professor BRINTON.

- b. One Lecture on the Writing of the Mexicans and Mayas, and the Ikonomatic System. Professor BRINTON.
 - c. One Lecture on the Systems of Writing of Eastern Asia. Professor EASTON.
 - d. Two Lectures on the Cuneiform Systems of Writing. Professor HILPRECHT.
 - e. Two Lectures on the Phœnician Alphabet and its Derivatives, (including an Exposition of the Egyptian System). Professor JASTROW.
 - f. One Lecture on the Iranian and Indian Alphabets. Professor EASTON.
 - g. Two Lectures on the Greek and Latin Alphabets, and their Derivatives. Professor LAMBERTON
- These lectures will be illustrated by casts and charts in the University Library and Museum. Dates to be announced.
3. Elements of Primitive Culture. Six Lectures (*First Term, 1894-95*). Professor BRINTON.

Students who take English Literature as a major subject, are required to take a course in English Philology and a course in English History.

Students who take Comparative Philology as a major subject, are required to take a course in Greek, of the same extent as a minor course in that subject, and a course in Semitic Philology.

Students who take English Philology as a major subject, are required to take a course in English Literature, of the same extent as a minor course in that subject, and a course in old French.

Any one of the following languages in the Semitic group may be selected as a major or minor subject: Arabic, Assyrian, Ethiopic, Hebrew or Syriac. A student is permitted to select two Semitic languages as two of the three subjects required for the Ph.D. degree. The other requirements for the degree of Doctor of Philosophy remain the same. More definite requirements for the degree of Master of Arts have been formulated by a committee of the Faculty and will be presented to that body at a later meeting. A few students have been admitted as candidates for the Doctor's degree who do not hold the lower Bachelor's degree. These were principally supervising principals of the public schools of Philadelphia, and it is a source of gratification to see a closer union being established between the public school system and the great University of the State.

Very respectfully,

HORACE JAYNE,
Dean.

APPENDIX No. XIV.

TO THE PROVOST OF THE UNIVERSITY.

SIR :—I have the honor of submitting the following report on the Department of Medicine for the scholastic years 1892-93 and 1893-94 :

During the entire period of existence of the Department of Medicine (127 years) there has not been an annual session in which the attendance of students has been so great as during the session of 1892-93. The students in attendance during the session named numbered 847, distributed in classes as follows :

Students of the Voluntary Fourth Year Class	13
Students of the Third Year Class	252
Students of the Second Year Class	260
Students of the First Year Class	311
Special Students	11
Total	847

Probably at no period in the history of any medical school in the United States has this number of students in attendance during a scholastic year been exceeded.

Of the first year class, numbering 311, in attendance during the session of 1892-93, there were seventy-eight members of the class, or 25.2 per cent, who possessed degrees in Arts or in Science. This class was the last class to enter the Medical School on the three-year course of study. The first year class which entered in October, 1893 (session 1893-94), at the beginning of the compulsory four-year course of study numbered 188 members, and of these 40, or 21.2 per cent, possessed degrees in Arts or in Science. Comparing these figures with the number of members of the first year class which entered when the compulsory three-year course was begun in 1877 (session 1877-78) we have the following :

Session.	First Year Class.	Degrees.	Per cent.
1877-78	136	19	13.9
1892-93	311	78	25.2
1893-94	188	40	21.2

It will be observed that of those who entered the first year class of the school in 1877, when the compulsory three-year course

was inaugurated, 13.9 per cent possessed collegiate degrees while of those who entered the first year class in 1893, when the compulsory four-year course was inaugurated, 21.2 per cent possessed collegiate degrees.

In the four-year course provision is made for graduates in Arts or Science who have pursued certain biological studies to enter the second year class of the Medical School under the following conditions:

College *graduates* in Arts or in Science who, during their College course, have devoted to the study of the branches named below the number of hours stated, are admitted to the *second* year of the Medical course without an entrance examination. These studies may have been pursued during any period of the College course leading to a degree. Students entering under these conditions must, during their first session in the Medical Department, take instruction in Materia Medica and Pharmacy and pass examinations in these branches by the end of the session.

General Biology	96 hours.	Histology	72 hours
Mammalian Anatomy	144 "	Human Anatomy	144 "
Botany	180 "	Physiology	48 "
Chemistry	216 "	Zoölogy	96 "
Physica	72 "	Embryology	72 "

Arrangements were made that students who had complied with the above named requirements might avail themselves of this advantage at the beginning of the session 1893-94, although a regular second year class on the four-year plan did not exist at the time. At the opening of the session in October, 1893, fifteen candidates availed themselves of this provision. Granting that these students would have entered the first year class, had no provision for entrance to advanced standing existed, the first year class under these circumstances would have numbered 203, and of these 55, or 27.0 per cent, would have possessed collegiate degrees.

It is encouraging to state that many of the classical and scientific colleges throughout the country have already arranged courses to meet the requirements for entrance to our second year class, while others are preparing to give courses in the branches named.

At the beginning of the four-year course in October, 1893, opportunity was given to students, who had matriculated the

previous year, and had attended during the first year of the three-year course, to elect to take the four-year course, beginning with the second year. It is gratifying to state that a number of students availed themselves of this privilege.

Provision was made to excuse students who had pursued chemical studies before entering the Medical School from the Chemistry of the first year of the course under the following conditions:

Candidates for admission to the first year who have had a course in Chemistry, and have performed laboratory work equivalent to that required during the first year in this school, will be permitted, on examination, to omit the Chemistry of the first year and to pursue the Chemistry and laboratory work of the second year during the first year of their Medical course. A considerable number of students availed themselves of this provision.

The session of 1893-94 began with the session prolonged from seven months to eight months with Commencement on June 7 instead of early in May as heretofore. This prolongation of the session does not appear to have had the effect of diminishing the number of students in attendance, instead the two upper classes have increased in number. The number of students in attendance upon instruction during the session 1893-94 was 796 distributed in classes as follows:

Students of the Voluntary Fourth Year Class	6
Students of the Third Year Class	274
Students of the Second Year Class	325
Students of the First Year Class	188
Special Students	3
Total	<u>796</u>

Compared with session 1892-93:

Total Number of Students in Attendance, Session 1892-93, . .	847
Total Number of Students in Attendance, Session 1893-94, . .	<u>796</u>

This shows a loss of fifty-one in the total number in attendance which is due to the smallness in the size of the first year class entering on the four-year course, as compared with the first year class which entered on the three-year course in the session 1892-93. There was an increase of twenty-eight students entering the second and third year class on advanced standing.

During the session of 1893-94, by special invitation of the Faculty, Professor J. M. DaCosta delivered two lectures and Dr. Isaac Ott, of Easton, one lecture before the students of the school. These lectures were very largely attended by the students, and it is hoped that this system of lectures by distinguished specialists may be continued.

The courses of lectures on the History of Medicine and on Medical Terminology proposed by the Faculty, December 21, 1891, were delivered for the first time during the session of 1893-94. They are very popular courses and a valuable part of the first year curriculum.

The specimens belonging to the Wistar and Horner Museum, except those which are used in teaching in the Medical School, were transferred during the session 1893-94 from the old museum room in Medical Hall to the new Wistar Institute of Anatomy.

One of the most urgent needs of the Medical School is a new building for the accommodation of the Physiological, Pathological and Pharmacological laboratories. The Physiological and Pharmacological laboratories at present occupy cramped and totally inadequate quarters and are in especial need of better facilities and more extensive rooms.

Respectfully submitted,

JOHN MARSHALL,
Dean.

APPENDIX No. XV.

It is known to the Board of Managers that, in order to secure the adoption by the Medical Faculty and by the Trustees of the Four-Year Graded Medical Course, I made a subscription of \$50,000, payable in five annual instalments of \$10,000 each, the first instalment payable in 1893.

The present communication concerns that subscription, and is made with the formal approval of the Medical Faculty.

The success of the advanced medical course has led the Medical Faculty to prefer an addition to the equipment of the Medical Department to an addition to its endowment.

The conditions of the last appropriation by the State Legislature to the University Hospital (requiring the actual receipt of \$80,000 specifically subscribed for construction of new Hospital Buildings before the payment of any part of the appropriation) renders immediate action necessary.

I have empowered my bankers, The Philadelphia Mortgage and Trust Company, to pay to the Treasurer of the University of Pennsylvania the sum of \$50,000 upon the following conditions :

First, That the additional \$30,000 requisite to meet the conditions of the said Appropriation Act be subscribed and paid in to the University before May 1, 1894.

Second, That the total sum thus secured as available for construction, namely, \$160,000, be forthwith expended in accordance with the conditions of said Act, and in general accordance with the following program :

For Extension of Maternity Hospital	\$20,000
For Erection of a Laboratory of Clinical Medicine	25,000
For Erection of New Wing to Hospital	95,000
or \$100,000.	
For Erection of a New Laundry and Disinfecting Apparatus	15,000
For Minor Construction	7,000
Total	<u>\$160,000</u>

Third, That the Trustees of the University shall pay annually, from the funds of the University Hospital, the sum of \$1250 toward the maintenance of said Laboratory, this being equivalent to 5 per cent upon \$25,000 which I had intended to be reserved as endowment.

It is understood that if when \$25,000 has been expended for construction of said Laboratory, the Trustees came into possession of money subscribed by other parties, so that any or all of the remaining \$25,000 of my donation be not required for construction, such portion of said donation shall be held by the Trustees and invested according to their discretion as a Special Endowment Fund of said Laboratory, the interest being paid over to the Director upon properly vouched and approved requisition, and the funds of the Hospital shall be released in a corresponding degree from any payment of interest.

Fourth. That the said Laboratory shall be erected in accordance with the plans prepared by Dr. Billings, the Director of the

Hospital and on the site designated by the Managers of the University Hospital, and shall be supplied with heat and light from the Hospital plant without cost to said Laboratory.

Fifth. That the said Laboratory shall be always styled and designated as The William Pepper Laboratory of Clinical Medicine, it being my intention to hereby create a memorial for my father.

Sixth. That the Director and Assistant Director of said Laboratory shall at all times be appointed annually by the Board of Managers of the University Hospital, upon the nomination of the Professor of Theory and Practice of Medicine, and of the Professor of Clinical Medicine.

Seventh. That the purpose of said Laboratory shall be to promote the interest of the patients in the said University Hospital by the prosecution of minute clinical studies and original researches, and to advance the interest of science by the publication of the results of such work.

It is accordingly stipulated, that at no time shall any teaching be given therein to Undergraduate students, or to any students except our own graduates or the graduates of other approved medical schools, whose curriculum is at least of equal length and grade with that of the Medical Department of the University of Pennsylvania.

Provision will also be made for advanced workers engaged in original research.

All publications emanating from said Laboratory, or based on work done in said Laboratory, shall be published as "Contributions from the William Pepper Laboratory of Clinical Medicine;" and this title shall be distinctly printed on all such publications.

It is my intention, should my life and strength be preserved, to supplement this foundation by a further endowment for the purchase of apparatus, and the publication of scientific memoirs.

WILLIAM PEPPER,

February 24, 1894.

Provost.

APPENDIX No. XVI.

REPORT OF THE DEAN OF THE AUXILIARY DEPARTMENT OF
MEDICINE.

WILLIAM PEPPER, M. D. LL. D., *Provost*.

SIR : As Dean of the Auxiliary Department of Medicine, I beg leave to submit the following report for the year 1893-94.

Professor Edward D. Cope was appointed to the Chair of Zoölogy and Comparative Anatomy, formerly occupied by Professor Harrison Allen; Professor Amos P. Brown to the Chair of Mineralogy and Geology, vacated by Professor Cope; and Dr. Charles K. Mills, Professor of Medical Jurisprudence, to fill the vacancy caused by the death of Dr. John J. Reese. Dr. Mills was also appointed Dean in place of Dr. Harrison Allen, who resigned to accept the position of Director of the Wistar Institute of Anatomy and Biology.

During the year instruction has been given by Professor Edward D. Cope, in Zoölogy and Comparative Anatomy; by Professor William P. Wilson, in Botany; by Professor John S. Billings and Dr. A. C. Abbott, in Hygiene; by Professor Amos P. Brown, in Mineralogy and Geology; and by Professor Charles K. Mills, in Medical Jurisprudence. The lectures on the last subject, which had been discontinued for a year, were resumed, and were open to the students of the Fourth Year of the Medical Department, as well as to those of the Auxiliary Department, were well attended.

During the year thirty-nine students were enrolled, a decided increase over the attendance in recent years. Of these, nineteen were from Philadelphia, ten from other counties in Pennsylvania, nine from other States, and one from Austria.

During the year important changes have been made with reference to the granting of certificates and degrees. The degree of B. Sc., which could be taken under the provisions of the announcements of 1892-93 and of previous years, was abolished for all students who had not matriculated regularly for the course of 1893-94; and new requirements and regulations were adopted. Under these new provisions medical graduates of not less than one year's standing, who have taken for at least two years the lectures and laboratory work prescribed in the courses in

Comparative Anatomy, Zoölogy, Botany, Medical Jurisprudence, Toxicology, Mineralogy, Geology and in Hygiene, and have passed satisfactory examinations, and presented to the Dean one month before final examination an original thesis, acceptable to the Faculty, upon some subject connected with these studies, will be recommended to the Board of Trustees for a special Certificate of the Department, signed by the members of the Faculty. In addition, certificates of attendance and proficiency may be given to special students.

The degree of Doctor of Philosophy may now be obtained by students of this department, on fulfillment of the stringent requirements of the Faculty of Philosophy, which will be found in the announcement of the Auxiliary Department. These include the possession by a matriculate of a baccalaureate degree, the pursuance of one major and two minor subjects, and the presentation of a satisfactory thesis. The student must give his undivided attention to the subjects selected for at least one year after graduation in medicine. Renewed interest in the Department is indicated by the increased number of matriculates.

CHARLES K. MILLS,
Dean.

APPENDIX No. XVII.

UNIVERSITY OF PENNSYLVANIA, DEPARTMENT OF LAW,

PHILADELPHIA, March 27, 1894.

SIR :—I have the honor to make the following report of the operations of the Department of Law during the year 1892-93 :

Instruction was given during the year by the following Professors and Fellows in the subjects hereinafter mentioned :

By Professor James Parsons to the Second Year's Class in the law of Partnership, and to the Third Year's Class in the law of Decedents' Estates.

By Professor George Tucker Bispham to the First Year's Class in the Principles of Equity ; to the Second Year's Class in Equity Jurisprudence, and to the Third Year's Class in Equity, Pleading and Practice.

By Professor Samuel S. Hollingsworth to the First Year's and Second Year's Classes, in the law of Contracts.

By Professor George S. Graham to the Third Year's Class in Criminal Law.

By Professor George M. Dallas to the First Year's Class in Torts, and to the Second Year's Class and Third Year's Class in Evidence.

By George Wharton Pepper, Esq., then the Algernon Sidney Biddle Fellow, to the Third Year's Class in the law of Corporations and the law of Insurance.

By Charles Cooper Townsend, Esq., assisting Professor Hollingsworth, in the law of Contracts, and assisting the Dean, in the law of Real Property and Conveyancing.

By George Stuart Patterson, Esq., to the First Year's Class in Pleading, and assisting the Dean in Constitutional Law, and assisting Professor Bispham, in Equity.

By Francis Herman Bohlen, Esq., in assisting Professor Dallas in the law of Torts and in Evidence.

And by the Dean to the Third Year's Class in Constitutional Law; to the Second Year's Class in Conveyancing and Practice in Real Property, and to the First Year's Class in the Principles of Real Property.

At the annual commencement the degree of Bachelor of Laws was conferred upon fifty-five graduates.

There were in attendance upon the School during the year :

In the Third Year's Class,	56 students.
In the Second Year's Class,	52 students.
In the First Year's Class,	83 students.
Special,	19 students.
Total,	210

Free scholarships were allowed during the year as follows :

FACULTY SCHOLARSHIPS.

In the Third Class,	7
In the Second Class,	2
In the First Class,	4
In all,	13

PUBLIC SCHOOL SCHOLARSHIPS.

In the Third Class,	3
In the Second Class,	1
In the First Class,	2
In all,	6

Twelve students who had matriculated, and attended all, or part of, the first term, left at the end of that term. The total number in attendance during the year was, therefore, 222.

The following comparative table shows the increase in the years given in the number of Professors, Fellows, and Students:

	Dean.	Professors.	Fellows.	Students.				Total.
				Third.	Second.	First.	Special.	
1883-84, . . . I	3	—	—	—	34	60	7	101
1884-85, . . . I	3	—	—	—	44	63	2	109
1885-86, . . . I	3	—	—	—	52	69	2	123
1886-87, . . . I	3	—	—	—	54	73	2	129
1887-88, . . . I	4	—	—	—	64	78	7	149
1888-89, . . . I	4	—	—	—	55	84	5	144
1889-90, . . . I	5	1	—	—	55	51	19	125
1890-91, . . . I	5	1	1	52	46	68	10	176
1891-92, . . . I	5	3	40	61	66	11	178	
1892-93, . . . I	5	4	56	52	83	19	210	
1893-94, . . . I	6	4	51	83	91	11	236	

THE GEORGE BIDDLE AND A. SYDNEY BIDDLE MEMORIAL LIBRARY.

The Library was founded by the gift of 5077 volumes by the family of the late George Biddle, Esq. Effingham B. Morris, Esq., has deposited in the Library 1127 volumes; H. LaBarre Jayne, Esq., has given 192 volumes; sundry donors have given 61 volumes, the Faculty have provided by gift or purchase 2883 volumes, and the Library to-day numbers 9340 volumes.

The Department has, beginning with 1887-1888, annually set aside 12 per cent of its tuition fees amounting, to 1892-1893 inclusive, to the sum of \$10,172.01, and disbursed that amount for the maintenance of the Library, including the purchase of books, and the salary of the Librarian and Janitor, and the purchase of Library stationery, no rent having been charged against the Library Fund.

1887-88,	\$1300 00
1888-89,	1443 40
1889-90,	1300 00
1890-91,	1803 00
1891-92,	1992 21
1892-93,	2333 46

Total to 1892-93 inclusive, \$10,172 07

THE FINANCIAL RELATIONS OF THE DEPARTMENT OF THE UNIVERSITY.

The University loaned to the Department the sum of \$2500 to defray the expenses of furnishing the lecture rooms and library room in the Girard Building. The interest on this loan at five per cent has been paid to the University, and \$2232.26 has been repaid to the University on account of the principal of the loan, reducing that principal to \$267.74.

Since the removal of the Department to the Girard Building, the Department has paid from its own receipts the rent of its library room and lecture rooms, and the salaries of its Dean, Professors, and Fellows, and the University has been at no charge for the operation of the Department other than the Department's share of the salaries of the Provost and Secretary of the University, and the Department's share of the expenses of the Annual Commencement.

Beginning with 1887 the Department has paid to the University net receipts (exclusive of the payment of interest upon, and principal of, the furniture loan) aggregating to 1892-93 inclusive, \$9926.42, as follows:

1886-87,	\$ 377 60
1887-88,	945 20
1888-89,	1002 00
1889-90,	838 00
1890-91,	1942 08
1891-92,	1940 94
1892-93,	2885 60
	<hr/>
	\$9926 42

This Department has also expended in furniture during the year \$175. 36

SUMMARY.

Library Fund to 1892-93,	\$10,172 01
University net receipts,	9926 42
Furniture in 1892-93,	175 36
Furniture Loan repaid,	2232 26
	<hr/>

Total net profits and income from 1886-87 to 1892-93 after paying rent, Professors' salaries, and all expenses of administration \$22,506 05

The following balance sheet classifies the receipts and payments for the year 1892-93 :

Dr.

To balance from 1891-92,	\$ 126 49
" tuition fees,	19,445 00
" rents,	1,950 04
" Biddle Fund Income,	500 00
" Morris Fund Income,	40 00
" interest on deposits,	53 67
Total,	<u>\$22,115 20</u>

Cr.

By library disbursements :

Purchase of books,	\$1423 11
Freight,	10 10
Rebinding books,	157 05
Stationery,	58 46
Salaries : Librarian,	\$350 04
Janitor,	267 00
	<u>617 04</u>
	<u>\$2,265 76</u>

By furniture purchased, 175 36

By general expenses of administration :

Printing and distributing catalogues,	\$333 83
Stationery,	66 40
Postage,	18 30
Printing examination papers,	108 14
Engraving diplomas,	106 95
Prizes,	90 00
Sundries,	65 75
	<u>\$ 789 37</u>

By salaries of Dean, Professors and Fellows, 11,597 93

By payment to the University :

8 per cent. on \$19,445,	\$1555 60
One-third net profits,	1200 00
For salary of Assistant Secretary (Mumford),	125 00
5 per cent interest on \$1467.74, balance of furniture loan,	73 40
Payment on account of principal of furniture loan,	1200 00
	<u>\$ 4,154 00</u>

By balance :

To credit of Library Fund,	\$67 64
" general fund,	315 14
	<u>382 78</u>

Total, \$22,115 20

The following statement excluding rent, library fund, furniture, and the Morris Funds, show the surplus for the year 1892-93.

RECEIPTS.

Tuition fees,	\$19,445 00	
Biddle Fund,	500 00	
Interest on deposits,	53 67	
		<hr/> \$19,998 67

EXPENDITURES.

Salaries,	\$11,597 93	
Expenses,	789 37	
		<hr/> \$12,337 30

Surplus for 1892-93, \$7,611 37

It is due to my colleagues, the Professors and Fellows, and to the Librarian and his assistants, that I should make acknowledgment of their faithful and self-sacrificing labors during the year.

I am, Sir, with sincere respect,

Your obedient servant,

C. STUART PATTERSON,

To the Provost.

Dean.

APPENDIX No. XVIII.

UNIVERSITY OF PENNSYLVANIA. DEPARTMENT OF DENTISTRY.

PHILADELPHIA, April 20, 1894.

PROFESSOR WILLIAM PEPPER,
Provost, University of Pennsylvania.

DEAR SIR :—I have the honor to report to you the condition of the Department of Dentistry, and the character of the work performed during the session, 1892-93.

The following statistics are presented for the year beginning September, 1892, and ending August, 1893.

The number of students matriculated 1892-93,	153
Of these there were students of the third year,	17
“ “ “ second year,	60
“ “ “ first year,	72
“ “ special students,	4
	<hr/> 153

Number of new matriculates, including those admitted to advanced standing,	86
Of these there were admitted upon presentation of certificate, . .	62
Admitted upon examination,	10
Admitted to advanced standing,	14
	— 86

Those admitted to advanced standing presented certificates from the following institutions :

American College of Dental Surgery,	1
Boston Dental College,	1
Cooper Medical College,	1
Ecole et Hospital Dentaire, Paris,	1
Pennsylvania College of Dental Surgery,	1
University of Berlin,	2
University of Breslau,	1
University of Geneva,	2
University of Halle,	2
University of Pennsylvania, Medical Department,	1
University of Vermont,	1

The countries represented in the Department are as follows :

Middle States,	84
New England States,	7
Western States,	15
Southern States,	11
Pacific States,	3
Australia,	3
Barbadoes, W. I.,	1
Brazil,	3
Cuba,	2
Dominion of Canada,	5
Ecuador,	1
England,	1
France,	1
Germany,	2
Gautemala, C. A.,	1
Hayti,	1
Mexico,	1
New Zealand,	1
Nicaragua, C. A.,	1
Orange Free States, S. Africa,	1
Philippine Islands,	1
Switzerland,	3
Turkey,	1
Uruguay,	1
United States of Colombia,	1
Venezuela,	1

SUMMARY.

United States and Canada,	125
Foreign Countries,	28

The amount of work performed in the Operative and Mechanical branches has been as follows :

OPERATIVE

Number of operations,	15,718
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MECHANICAL.

Number of operations,	706
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Total,	16,424
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Amount of gold used for stopping, exclusive of that used in mechanical work,	42 ozs., or 3 lbs. 6 oz.
Number of patients,	6833
Number of students in graduating class,	21
Number of students who received the degree,	17

The session 1892-93, was looked forward to with some anxiety as it represented the second session of the three required. It was, therefore, with much satisfaction that when we entered the regular work of the course, it was demonstrated that there had been an increase of 12 matriculants over those of session 1891-92, or, in other words, 60 for the first and 72 for the second; which, added to 17 students entitled to graduate, under previous regulations, and 4 special students, made the total for the session 153.

This ensured the Department from loss and also made it reasonably certain that future years would show a proportionate increase. This has been fully demonstrated in the session of 1893-94 not yet completed, in which the total number of students of all classes has reached 231.

The certainty that this increase will be steadily maintained leads the executive officers of the Department to view the difficulties of management with much concern.

There is a limit to the number capable of being taught satisfactorily in a dental school, but that we have reached that limit I am not prepared to believe, and hence look hopefully for an extension of our list of matriculates very much beyond present numbers.

You are aware, however, that with our present accommodations the limit has been exceeded, and unless relief be afforded it is feared we will enter upon the course of 1894-95 with the

difficulties of the past increased by many additions to our list of students.

The monetary complications prevailing the past year throughout the country has prevented any active efforts toward a new building for the Department, and while it is possible relief will not come in this direction for some years, it is equally certain that unless something be done, the Department must remain stationary, and this means loss of reputation.

The Faculty, after due consideration, extended the course in harmony with other departments of the University to eight months, or from October 1st to the first week in June. This extension takes effect the present session of 1893-94.

The dental schools of the country have been gradually extending the length of their sessions, but comparatively few have more than five months. It is anticipated that the National Association of Dental Faculties at its next meeting will require an extension of time.

The number of foreign students still continue to show an increase. It was anticipated that the financial depression would affect this, but the number of forty-one from foreign countries for 1893-94 indicates that it has not had the depressing effects expected.

Appended is a condensed statement of income and disbursement for the fiscal year 1892-93.

1892-93.	
Tuition, matriculation and graduation fees,	\$14,095 00
Fees from previous years,	430 00
Operative and Mechanical Clinics,	3,542 50
	<hr/>
	\$18,067 50
Less fees returned,	250 00
	<hr/>
Total income from all sources,	\$17,817 50
Disbursed as follows:	
Current Expenses of Session,	\$ 5,286 12
Professors and Demonstrators,	7,200 00
Principal and Interest on Laboratory Building,	461 25
Surplus to Professors and Demonstrators,	4,870 13
	<hr/>
	\$17,817 50

Respectfully submitted,

JAMES TRUMAN,
Dean.

APPENDIX No. XIX.

TO THE PROVOST OF THE UNIVERSITY.

DEAR SIR: I have the honor of submitting the following report of the Veterinary Department for the session 1893-94.

It appears to be the experience in professional schools that during times of financial crises the classes in these schools increase considerably above their usual size. This may be attributed to the partial or complete closing of manufactories and the stagnation in trade in mercantile establishments, thus affording young men no opportunities for employment, and, in consequence, many who otherwise would not do so, choose a professional career.

This statement does not seem to apply to the School of Veterinary Medicine, for during the financial crisis just passing there has been, compared with recent years, a considerable diminution in the size of the entering class as well as a loss in members of the higher classes. Possibly this loss may be attributed to the Veterinary School's dependence for many of its students upon the agricultural classes of the country with whom there is always more or less employment on the farm for young men.

During the session of 1892-93 there was a total attendance of 92 students, while during the session of 1893-94 just passed the total attendance was 78, a loss of 14 students.

The following table shows the number of students, in classes, in attendance during the two sessions:

	Session 1892-93.	Session 1893-94.
Students of the third year	30	25
" " second "	24	26
" " first "	36	26
Special students	2	1
	—	—
Total attendance	92	78

It will be observed that the first year class, session 1893-94, numbered 10 less than the class entering in 1892-93, and that the latter class, which this session (1893-94) is the second year class, numbers 10 less than when it entered last year. Last year's second year class on entering this year (session 1893-94) numbered one more than last year. From the tenor of communications received from former students who were obliged for pecuniary

reasons to discontinue their studies, it is believed that many will return and thus augment the size of next year's (session 1894-95) second year class.

The course in practical forging in the blacksmith shop has been discontinued, and in its stead a full course of lectures on horse-shoeing has been substituted.

Owing to the crowded condition of the Biological Department instruction in general biology, botany and zoölogy is now given in one of the buildings in the grounds of the Veterinary School. This change has been of advantage to the students of both departments in that they receive more individual instruction.

Additions, including a Sartorius short-arm balance, have been made to the equipment of the Physiological Laboratory, and a high power microscope has been purchased for use in research work. A full collection of the weeds and seeds of the weeds of the United States has been purchased for use in the teaching of botany.

Various minor improvements have been made in the buildings of the school, and it is gratifying to report that the property is in good condition.

The income of the school from tuition fees, together with the generous annual contribution of the children of the late J. B. Lippincott, Esq., form a fund from which, after the current expenses are paid, there remains a sum which is applied to the payment of the salaries of the professors. This sum is totally inadequate to sufficiently compensate the professors of the special veterinary branches for their services, and, therefore, it is earnestly hoped that, either by endowment or by contribution, the income of the school may be increased.

I have the honor to remain very respectfully yours,

JOHN MARSHALL,
Dean.

REPORT OF THE VETERINARY HOSPITAL.

Two thousand and fifty-three animals were treated in the hospital during the year ending August 31, 1893. This is an increase of 228 animals treated over the number treated in 1892, an increase of 475 over the number treated in 1891.

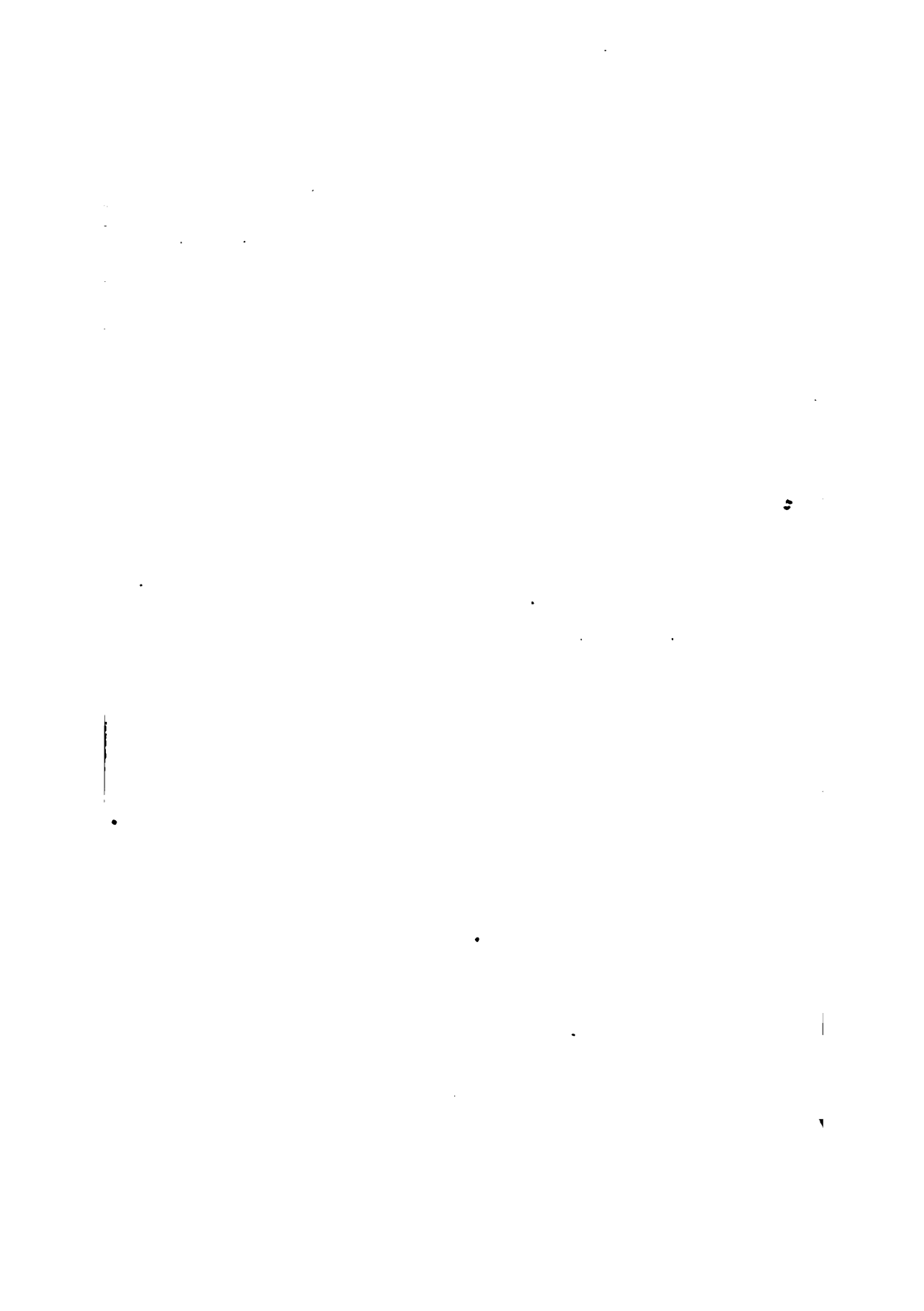
John W. Adams, A. B., V. M. D., occupying the Professorship of Surgery and Obstetrics in the Veterinary School, was elected early in the scholastic year to a position on the Hospital Staff of Surgeons and to membership in the Board of Managers of the hospital.

The asphalt pavement in the gateway of the hospital has been replaced by a substantial granolithic pavement.

Section G of the hospital building, formerly occupied as a dog kennel, has been fitted up with six commodious box stalls, thus increasing the capacity of the hospital.

The building erected as a hospital for dogs and other small animals was completed last year and supplied with the necessary equipment. This addition to the working plant of the hospital has been in successful operation from the time of its opening.

To render the Veterinary Hospital still more useful in the care of a larger number of sick and injured animals, it is hoped that the humane people of our city will contribute toward its support by annual contributions or by the endowment of stalls and kennels.





SEP 29 1936

